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NOTE.—Communications relative to the editorial management should be addressed to Mr. ROTHWELL, P. O. Box 4404, New York. Articles written by MR. RAYMOND will be signed thus *

Business communications for the Western Department should be addressed to the Western Office at Denver, Colo.

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NOTICE.

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A MOST encouraging sign of the genuine interest being taken in mining enterprises in this market comes to us in the gratifying form of congratulations and encouragement for the policy of this journal in seeking to prevent the floating of wild, worthless or fraudulent schemes in this market.

Every honest man recognizes the fact that the best friends of our mining industry, whether it be gold, silver, lead, copper, coal or iron mining, are those who would make investments in these mines safe and profitable; and they readily appreciate the reason which prompts those more or less interested in floating worthless stocks or in stock gambling to denounce this journal as making "war against the silver mining industry," or discouraging the growing interest in gold and silver mining. We are quite satisfied to merit and receive, as we do, the confidence of capitalists and of *bona-fide* mine owners; or, as an esteemed and highly intelligent "working miner" and mine owner in the San Juan district puts it, we are satisfied to publish "a paper which is not a bureau for the sale of mines, or the tool of stock gamblers." We believe, as we have many times repeated, that mining investments, when prudently made, are the most profitable a capitalist can select; but stock gambling is not "prudent investment;" and reckless, not to say dishonest schemes, naturally result in loss, and throw unmerited discredit on a legitimate business.

THE SILVER MOUNTAIN MINING COMPANY SWINDLE.

We have received several letters asking for information concerning the Silver Mountain Mining Company, claiming to have mines in Carbon County, Wyoming (not the St. Louis Company of this name which is referred to in our correspondence this week). We exposed this swindling concern and the parties interested in it in our issue of July 28th, 1877. It seems the parties are again trying to take in the unwary.

W. S. O'BRIEN.

A telegraphic dispatch from San Francisco announces the death of Mr. W. S. O'BRIEN, of the firm of FLOOD & O'BRIEN, at San Rafael, May 2d, after a lingering illness lasting several months. His death will in no way interfere with the business of the firm.

We take the following from the N. Y. *Times* of to-day:

"Mr. O'BRIEN was a bachelor, but has a sister, niece, and nephew in California, and a sister and niece in Paris or on their way home from there. The value of his property is vaguely estimated at from $15,000,000 to $20,000,000, but it is intimated that rumor has magnified his wealth.

"Mr. O'BRIEN was a man of shrewd ability and wariness. But it has been said, probably with some truth, that he chiefly owed his great financial success to his luck. He was of very humble birth, and without any but the commonest rudiments of an education. For many years he kept a modest lunch-counter in the lower part of one of the stock exchanges of San Francisco. Gradually he speculated in mining stocks, and usually his luck was great. He bought and sold cautiously, and in small lots, but the profits on his transactions always seemed to be in his favor. In this way, partly by expert management and partly by rare good fortune, he accumulated a modest sum. When the great discoveries were made in the silver lodes known as the Bonanza Mines, three or four years ago, O'BRIEN had formed a business partnership with FLOOD, another successful operator. A third partner, Mr. MACKEY, was added, and a fourth, Mr. FAIR, subsequently joined the firm. The great firm of FLOOD, MACKEY & O'BRIEN controlled the Consolidated Virginia and the California lodes, which yielded millions of the finest silver ore ever brought to the surface. The discovery of this 'bonanza' was a tremendous streak of luck to the four speculators. The stock appreciated in market value beyond the wildest dreams of the most sanguine operators. Nothing like it was ever known in California since the earlier gold discoveries of 1849 and 1850. The feverish excitement of that time has long since died away. But "the Bonanza Princes," as they are called, have retained fortunes in solid and substantial investments, wildly estimated at from $15,000,000 to $40,000,000. These figures are undoubtedly very much exaggerated, but the famous firm which controls the great Bank of Nevada and a vast mining property, is one of prodigious wealth. Not one of the three original partners was born in riches or blessed with the education of the schools. The man who died Thursday, the possessor of millions, was a striking example of the vicissitudes of American life."

THE INSTITUTE NOMINATIONS.

The Secretary of the American Institute of Mining Engineers has issued his annual circular, containing the following nominations:

For President—ECKLEY B. COXE, Drifton, Luzerne Co., Pa.

For Vice-Presidents—JOHN F. BLANDY, Merchantville, N. J.; WM. METCALF, Pittsburg, Pa.; R. H. THURSTON, Hoboken, N. J.

For Managers—GEORGE ASMUS, New York City; B. W. FRAZIER, Bethlehem, Pa.; WM. B. POTTER, St. Louis, Mo.

For Treasurer—THEODORE D. RAND, Philadelphia.

For Secretary—THOMAS M. DROWN, Easton, Pa.

As this list comprises all the nominations, it is evident that there are thus far no more candidates than vacancies. Of course, any member can substitute names for any or all of those nominated. There is nothing "official" in the above list, except the official notice which it implies, that no other names have yet been presented.

But we do not see that this list could be improved. We have examined the catalogue, to see how the Council would be constituted, if these gentlemen should be elected; and we find that the various important considerations of geographical and professional distribution are very well satisfied. Perhaps Pennsylvania gets the lion's share of office; but Pennsylvania furnishes also the lion's share of active and trusted members. We could name a dozen at this moment, who, if they would only move to some less favored State, would be entitled to the distinction which now they miss, by reason of their locality. It would be manifestly unwise to make the whole Council of New Yorkers or Pennsylvanians, or to make it all of iron or steel or coal or metallurgical engineers or professors. Nor would it be practicable to elect many officers who could not attend council meetings; nor would it be just to elect such as have never shown an active interest in the proceedings. In all these respects, the list of this year is very discreetly distributed. Taken together with those Managers and Vice-presidents who hold over, it will be found to secure a representation of many sections, of many branches of practice, and of many technical schools, while it secures also an efficient working Council, composed of men whose reputation outside of the Institute, and whose labors within it, deserve the distinction bestowed upon them.

As regards the nomination of ECKLEY B. COXE for President, there will be but one voice. If telephones were as abundant and handy as they will be, some of these days, his election could be carried at once by a unanimous *viva voce vote*. As one of the founders of the Society, as one of the first mining engineers of the country, or as the object of universal affection and esteem in a circle which includes the whole Institute, and reaches far beyond—on either head, his claims are unsurpassed and undenied. As for RAND and DROWN, one might as well pull out the linch-pins of the concern at once, as interfere with *them!* The day when, for any reason, we have to vote for any other secretary and treasurer, will be a day of calamity. It is not merely "letting well enough alone," to reëlect these faithful officers; it is obeying that other profound precept, "Get the Best—and when you've got it, Hang On to it!"

THE FOURTH OF JULY MINING COMPANY.

We publish elsewhere a letter from the President of the Fourth of July Mining Company, which explains the prospectus of which we last week complained, in language that carries throughout evidence of truthfulness and honesty. We have great pleasure in accepting the explanation given that the misquotations of Mr. RAYMOND'S report were unintentional, and we believe the gentlemen connected with this enterprise are desirous of representing the property fairly. Unquestionably, the property is a promising one—much better than the prospectus which we criticised—and its claims are most modestly set forth by Mr. EARLE when he says: "All we can say or desire to say, at present, in reference to the Fourth of July Consolidated Mining Company is fully expressed in the language of Professor RAYMOND, 'As a field for exploration, it promises well.'" In this view we can cordially commend it to the attention of those desiring to plant in fruitful ground. We can not, however, refrain from protesting against the capitalization of the property in its present condition at $3,000,000. It would be time to give it this valuation after the proposed explorations had demonstrated its ability to pay dividends justifying it.

With regard to the desirability of a U. S. patent for mining property,

we still maintain our position. Any mine that has a perfect title can obtain it, and it becomes, therefore, a kind of guarantee that the title is good. We see the fact that the "Bonanza Mines" on the Comstock have no U. S. Patent, cited as proving that this is not necessary; an unfortunate illustration, for we have recently recorded the statement that the Sutro Tunnel Company claims a portion of those mines, and some other claimant to a large part of them has also appeared. It is by no means certain that some of these claims may not hold, and where then will the stockholders be? A U. S. patent is certainly not unadvisable, nor altogether unnecessary.

We consider this property well worthy the investigation that is asked for it, and we believe those joining the present owners will be fairly and honestly treated.

CORRESPONDENCE.

EDITOR ENGINEERING AND MINING JOURNAL:—Would any of the contributors to the JOURNAL give an answer and explanation in figures to the following questions, viz.: An entry dips ten (10) feet in a distance of one hundred yards; a siphon pipe 2 ins. diameter is put in, and at the discharging end it has a fall of ten feet. How many gallons of water will be discharged in 5 minutes by said siphon, and what will be the velocity of the water through said siphon?

A STUDENT IN THE MINES.

CORRECTION.

ST. LOUIS, MO., April 25, 1878.

EDITOR ENGINEERING AND MINING JOURNAL—*Sir:* In your issue of the 20th inst. your correspondent, "B," states: "Only one furnace of the Missouri Iron Company furnished with Iron Mountain ore is in operation." He has got things somewhat mixed, as the only furnace now in operation at South St. Louis is one of the Missouri Furnace Company's, and we are furnishing all the ore for it from our mines known as Simmons' Mountain. Scotia (a charcoal furnace near Leasburg, Crawford County) is also in blast.

Yours truly, H. A. CRAWFORD,
Gen. Manager Mo. Iron Co.

THE FOURTH OF JULY MINE.

NEW YORK, May 2, 1878.

EDITOR OF ENGINEERING AND MINING JOURNAL—*Sir:* May we ask the favor of you to correct one or two little matters in your article of last Saturday relating to "The Fourth of July Consolidated Mining Company," which are calculated, we think, to convey erroneous impressions?

First, as to the title to the Fourth of July mines. The title is unquestionably good. No patents, it is true, have yet been obtained, but the mines are held under location certificates, duly executed and recorded according to the laws of the United States. The annual work required by law to be performed on each mine has been performed up to August of the present year, and has been paid for in full. We hold receipts for the payments, which you, or any other parties, are at liberty to examine at any moment.

The company intend during the present season to apply for patents, which, no doubt, can and will be obtained without the slightest difficulty. In fact, the matter has already been discussed, and the preliminary measures for procuring the patents have been commenced. But while we concede this much, and are of the opinion it is invariably best to hold the Government patent, we well know that the owners of many mines *prefer* to hold the possessory title under location certificates. They regard this course as being attended with less expense, and it is unquestionably true that many mines, holding no patents from the Government, have disbursed immense amounts in the way of cash dividends.

In the second place, allow us to say we had no intent or purpose whatever to misrepresent the views and opinions entertained by Professor RAYMOND in reference to the mines belonging to this company. The prospectus does not profess to give the entire report made by him in 1876 relative to the Fourth of July Lode. The object was to abbreviate the prospectus as much as possible, and if in making selection of extracts from that report any injustice has been done to Professor RAYMOND, we shall be pleased to make the correction.

In omitting the sentence referred to in the editorial of last Saturday, and which is in the following words: "The crevice material is the same as that found elsewhere, carrying, irregularly scattered across its width, numerous seams of ore, varying in width from an inch to a foot of all grades," we never for a moment supposed that its omission or insertion would change the opinion of a single individual as to the real value of the Fourth of July Lode. It certainly did not change or modify the opinion of its author, for in a subsequent part of the same report he adds: "The width of the vein will necessitate exploring crosscuts at regular distances, and probably before the first 500 feet are passed enough ore will have been found (if one may judge by surface indications) to demonstrate that the Fourth of July is one of the most valuable mines on the Continent."

Nor did we deem it all important to state whether the report of Prof. RAYMOND was based on his own personal observation, or on information obtained through others.

This we regarded as immaterial, as the report was his own, no matter from what source his information was derived. Of course it was utterly impossible for him to give his personal attention to all the mining statistics embraced in any one of his reports. In many cases he was necessarily compelled to rely upon the personal observation and knowledge of others; but the high favor in which his reports as United States Commissioner of Mining Statistics have always been justly held conclusively demonstrates that he selected his deputies and agents with great foresight and judgment. And, as it regards this particular property (Fourth of July), it seems that even the lapse of years has not caused him to change the views expressed in his report of 1876, whether these views were formed from personal observation or otherwise, for in his editorial of last Saturday he says:

"It is evident to us, moreover, from a perusal of the Government Report, that the Fourth of July, though called a lode in miner's phrase, is, in all probability, not a 'great fissure,' but a zone of rock containing many fissures and ore deposits. As a field for explorations it promises well—unless, indeed, its great width should prove 'too much for its richness.'"

This opinion is consistent with the opinion expressed in the omitted sentence, and may be the correct one; for while many persons regard the Fourth of July as a "great fissure," others believe it is an immense ledge or zone of gold and silver bearing rock, containing many fissures or ore-deposits—some large and some small, some containing ores of high grade and some low, but in the aggregate extending over such a vast territory and existing in such immense masses that even if the grades of the ore be low, these ore deposits or fissures must prove immensely valuable.

Certainly Professor RAYMOND is right in saying of this Fourth of July property: "As a field for explorations, it promises well."

This is all we claim for it at present. The prospectus expressly states, it has never been explored to any great depth. We have no desire to mislead those who propose to invest in mining property or mining stocks. Had such been our purpose, our prospectus might have contained estimates and figures which would probably have produced intense excitement among those dealing in mining stocks. But we prefer to make no such exhibits unless they are based on actual mill-returns or well-authenticated statistics. We prefer to let these mines gradually work their own way into favor, and to stand or fall on their own merit.

Mr. WILLIAM H. ASHTON, a mining expert of many years' experience, and the owner of the largest interest in this mining property, has gone to Colorado to look after the developments on these mines. These developments will be carried on in the most energetic and thorough manner during the present season, provided working capital sufficient for the purpose can be procured. To raise this working capital, it is proposed to sell a limited amount of the stock set apart for that purpose. All we can say, or desire to say, at present, in reference to the Fourth of July Consolidated Mines, is fully expressed in the language of Professor RAYMOND, "As a field for explorations, it promises well."

Had the parties who owned the Fourth of July mines, and who conveyed them to the company, been able to command the capital necessary for their development, the company would never have been organized; and could the desired amount of capital be now obtained in any other way, they would not favor the sale of a single share of the working capital stock.

But not having such command of capital, they have organized a company, and the best they (the company) can do is to invite those who may be so disposed, to purchase a limited amount of their stock, and, as stockholders, to share with them in the risks to be incurred, and to participate in the profits to be realized.

Respectfully your obedient servant, GEORGE EARLE,
President of the Fourth of July Consolidated Mining Company.

INVITATION TO THE AM. INSTITUTE OF MINING ENGINEERS.

The German Minister of Commerce has addressed the following official communication to Prof. THOMAS EGLESTON, Jr., of the School of Mines, Columbia College:

BERLIN, March 23, 1878.

SIR: In the expectation that American mining engineers attending the Paris Exposition this year will extend their tour of observation to Germany, for the purpose of inspecting its industrial establishments, and being desirous to reciprocate the friendly reception accorded to German artisans, and especially to the Commissioners sent by me, on the occasion of the Centennial Exposition at Philadelphia, I have directed that technical works and geographical, topographical and other maps be open for inspection to our American visitors in the Library of the Royal Mining Academy, Lustgarten No. 6, and that information can be obtained there regarding the most desirable routes to take, and the location and importance of the industrial establishments which the visiting engineers desire to inspect.

Please have the kindness to inform, accordingly, the President of the Association of Mining Engineers.

The Minister of Commerce, Industry, and Public Works,
ACHENBACH.

To the Director of the Mining School of New York,
Dr. EGLESTON, New-York.

ENGINEERS' CLUB OF PHILADELPHIA.

At the last meeting of the club the Secretary read a paper by Mr. WILLIAM F. BIDDLE, entitled "Notes on the Location and Construction of a Mining Water-works in Venezuela." The work described was that of locating and constructing a pipe line to take water from the Oronoco River 3 miles inland and 285 feet high, to a stamp mill at the out-crop of a rich quartz vein; the mill having been built there in the disappointed expectation of getting water by sinking a slope to a moderate depth on the vein. The paper was fully illustrated by profile and sketches showing how the work was done.

The line was laid with 4-inch and 5-inch cast-iron pipes and with wooden troughs 7 inches wide by 6 inches deep. Two Worthington duplex pumps were used to operate the line, one located at the river and the other 5800 feet from it. The starting-point in both the preliminary and final surveys was the second pump. In fact, the whole plan grew out of the remarkable advantages afforded there for delivering the water on top of a high plateau through a comparatively short discharge-pipe. The first pump discharged through a pipe 464 feet long, with a lift of 160 feet into troughs which followed the contour of the hills, with a falling grade of $\frac{1}{10}$ per 100 feet. Before reaching the second pump, two ravines were crossed by means of inverted siphons. In calculating the heads for these, the wide differences between the formulæ of WEISBACH, EYTELWEIN and others became very apparent. The comparison of these formulæ and notes on KUTTER'S formulæ for open channels formed a very valuable and interesting feature of the paper.

Mr. JOHN BOGART remarked that the paper was one of very great interest, and that it brought out some points upon which engineers are in great need of practical information. A paper by General THEODORE ELLIS, which he had read at the New Orleans meeting of the American Society of Civil Engineers, showed the same unsatisfactory results in a comparison of formulæ relating to the flow of water in small channels.

Mr. HENRY C. LEWIS made some remarks in regard to a Deposit of

COAL IN MONTGOMERY COUNTY, Pa., to which he had referred at the meeting of the club held March 16th. Upon visiting the locality, he had found it one of very great interest. The deposit of coal does not occur at the lower boundary, but toward the center or upper center of the mesozoic red sandstone. The sandstone has a flat dip southwest and shows a low anticlinal fold.

Mr. INGHAM remarked that there are several questions connected with the Mesozoic formation which are of very great importance, and which it is hoped will be solved by the present Geological Survey of the State. The formation is broken up by numerous trap dikes which are often accompanied by minerals of economic importance. In many places, the sandstone has been forced up into dome-shaped folds, where the trap dike has not reached the surface. Such was the case at the Sellersville Tunnel, and was the cause of very great expense to the N. P. R. R.

Mr. PERCIVAL ROBERTS, Jr., called the attention of the club to some notes on an "Empirical Formula for Estimating the Strength of Wrought-iron Beams, Channels, etc.

Mr. ROBERTS thought the formula might be found convenient for making rough calculations, on account of its simple form.

Considerable discussion followed in regard to the various reasons for variations in the strength of manufactured iron, methods of testing, etc.

Mr. BOGART called especial attention to the work of the U. S. Board for testing iron, steel and other metals. Congress has appropriated, and the Board has expended, nearly one hundred thousand dollars. A clause in the act creating the Board provides that it shall cease when the appropriation shall have been spent. The Board has gone through enormous preliminary labor and has cleared the ground for effective work. If Congress refuse now to continue the appropriation and the Board is dissolved, the work already done will be measurably lost, and a new board would have to go through much of the preliminary work again. In the mean while we shall go on for years groping in the dark for the knowledge which the Testing Board is organized to procure; these years being marked at short intervals by disastrous blunders of engineers, architects, builders and mechanics. On the other hand, if the Board is sustained, the knowledge obtained will be conducive to the great material interests of our people, and it will enable us to design and execute works creditable to ourselves and to American engineering. Upon motion of Mr. INGHAM, a committee was appointed to memorialize Congress, asking a continuation of the work of the U. S. Board for testing metals.

CHAS. E. BILLIN, Secretary.

BLAST FURNACE TECHNOLOGY IN BELGIUM.

From Advance Proofs of Mr. Julien Déby's Report to the British Iron and Steel Institute.

[*Continued from page* 290.]

The Société Anonyme des Forges et Ateliers de Construction de Chapelle by Herlaimont et Carnières is the owner of the patent, and is working it under a monopoly.

The composition of some of the principal ores of iron employed by the Belgian blast furnaces is given in the last valuable edition of Valérius's "Traité Théorique et Pratique de la Fabrication de Fer," edited by his brother. We give in the annexed tabular form the principal results of the analysis of these ores.

At the present day, the larger proportion of iron ores employed in the Belgian practice is derived from the Grand Duchy of Luxemburg, and is known by the name of "minettes." Two varieties are known, the gray and the red, the composition of which may be taken to average as follows:

GRAY MINETTE.

	Per cent.		
Silica, soluble and insoluble	11·77		
Peroxide iron	55·91	= 41·13	
Protoxide of iron	1·12		
Alumina	8·04		
Lime	6·36		
Phosphoric acid	1·17	= 0·75	
Sulphuric acid	0·49	= 0·23	
Carbonic acid	4·95		
Water	10·08		
	99·99		

RED MINETTE.

	Per cent.	
Silica	7·87	
Peroxide iron	59·84	= 41·88
Alumina	6·97	
Lime	8·05	
Phosphoric acid	1·05	
Sulphuric acid	0·34	
Carbonic acid	6·34	
Water	9·56	

The pig-iron produced from these ores has the following composition:

	White Iron.	Gray Iron.		White Iron.	Gray Iron.
Iron	96·663	93·642	Sulphur	0·336	0·015
Aluminium	0·021	0·023	Carbon	0·425	0·141
Calcium	0·035	0·011	Graphite	0·908	2·142
Magnesium	0·004	....			
Silicium	0·597	3·514		99·997	99·505
Phosphorus	0·010	0·017			

Attention is being paid to the introduction into Belgium of the manufacture of light cast-iron tiles for roofing purposes, by a process which is profitably carried out in Saxony at the present day, and which if generalized might lead to a considerable increase in the consumption of this metal. These tiles are cast with two small holes at the top for the introduction of two flat-headed nails, which hold them to the framing.

SILICEOUS STEEL.

MM. L. L. DE RONNICK and A. GHILAIN, engineers, have entered into the study of the condition under which silicon is contained in Bessemer steel. They operated the separation of the slag by SCHLOESIG'S process, namely, by acting on the metal by means of dry chlorine at a temperature sufficient to volatilize the chlorides produced. The details of the apparatus employed, and of all the precautions taken in order to obtain accurate results, would lead us far beyond the limits of the present report; but we may state that the conclusions arrived at by these competent gentlemen is, that no silicon was reduced by the action of either iron or carbon under the influence of chlorine. The scoria contained in the Bessemer steel made at Seraing was found to be small and very nearly constant. This slag contained 50 per cent of silica, equal to, in round figures, about 25 per cent of silicon. The percentage of silicon in the steel assayed varied from 0·06 to 0·84 per cent. The final results obtained were such as to prove nearly to a certainty that the silicon was contained in the metal either as a silicide of iron or of manganese, or more probably of both together, as it is a well-known fact that the more manganiferous the steel the richer it is in silicon. M. BESIMONT, of Seraing, furnished analyses of several samples of Bessemer steel made at their works, which corroborated the opinion expressed by MM. De Ronnick and Ghilain. They were as follows:

	Carbon.	Silicon.	Sulphur.	Phosphorus.	Manganese.	No. of Temper.	Resistance to Rupture per Sq. Millimeter.	Lengthening.
	per ct.	per ct.	per ct.	per ct.	per ct.		Kilogs.	
Ordinary steel	0·24	0·075	0·04	0·08	0·60	..	51·00	22·4
	0·30	0·09	0·04	0·075	0·50	..	55·34	22·3
Highly siliceous and not tempering	0·18	0·02	0·03	0·088	0·65	..	46·6	29·0
	0·20	0·80	0·06	0·09	0·80	..	72·2	17·0
	0·19	0·73	0·07	0·087	0·80	..	71·0	17·8
Siliceous but tempering	0·25	0·83	0·045	0·09	1·00	4	74·5	18·5
	0·30	0·84	0·037	0·09	1·10	5	77·5	19·0
	0·34	0·97	0·05	0·09	1·00	5	83·1	13·0

The most interesting fact connected with the above analysis, long since stated by Mr. PHILIPPART, is that carbon is not the only body which has the property of influencing the temper of steel, but that silicon possesses it also in a very positive degree. The result of many trials* has led him to the conclusion that in order to obtain an equivalent degree of hardness in steel, the proportion of silicon needed has to be two or three times the required quantity of carbon for an identical result.

(TO BE CONTINUED.)

BLASTING WITH DYNAMITE UNDER WATER.†

By J. Mahler.

The author states that for subaqueous blasting dynamite is being used more generally, with economy and certainty. Old piles, snags, and timber generally, when imbedded in the course of a river, have always been troublesome to remove, and the author proceeds to describe the process of blasting a number of such obstacles which impeded the Danube and its branches near Vienna.

The first objects were two heavy 18-inch piles which had been used for the erection of the bridge over the Danube at Stadlau; they were about 15 feet apart, 100 feet from the center line of the existing bridge, and 400 feet from the left bank, the mean depth of water round them being 10 to 11 feet. Their heads reached a few inches above the mean level of the water, and, the current being very violent, the bed of the river was washed out 4 to 5 feet on the down-stream side. A heavy raft was constructed and attempts made to draw the piles; as these failed, recourse was had to blasting in the following manner. A dynamite cartridge was made with a charge of 2·2 lb. and inclosed in a tin case, which also contained a small explosive cartridge of gun-cotton and the wires for conducting the electric spark. Each of these cases was completely coated with gutta-percha composition (the wires being allowed to project) and secured to a long wooden pole, which was then pushed down on the up-stream side of the pile and fastened to the latter. Thus the tin case was brought into immediate contact with the pile on its upper side, close to the ground. The wires, which were also covered with gutta-percha, were led up to the top of the piles, and from there to the raft, which was pushed a few yards off, the electrical machine (a simple disk apparatus) being put up on the shore. When the explosion took place a column of water 25 feet high was sent into the air, and both piles were broken off flush with the ground, the obstacle being thus effectually removed.

The next attempt was on two heavy oak logs imbedded in the Danube canal. The first was 25 feet long, with large roots at one end and a mean thickness of 5 feet. It was lying crosswise, deeply imbedded in the gravelly bed, and, as usual, there was a great hole on the down-stream side through the force of the current, and a bank up-stream. The depth of water over the log was about 5 feet. The process adopted was somewhat similar to that just described. Two tin cases were filled with 13 lbs. of dynamite and prepared with gun-cotton, wires, and gutta-percha as before; these cases were securely attached to the lower ends of two poles, which were driven into the ground on the up-stream side of the log about 6 feet from each end, the tin cartridge cases being thus brought into close contact with the log, and about 13 feet apart. The firing was conducted as before, but owing to the increased quantity of dynamite the explosion was much more violent, water, gravel, and débris being thrown up to a height of about 33 feet. Soundings were immediately taken, and it was found that not only had the logs been completely destroyed and removed, but the bed of the canal equalized by the explosion, the depth of water being now 10 feet throughout.

The second log was only 7 feet long and 3 feet 4 inches in diameter; it was imbedded longitudinally in the middle of the canal, with its branching roots up-stream and its other end half covered with gravel. The depth of water over the root was 4 feet, there being, as usual, a hole on the lower side. Similar means were used, the weight of dynamite being 8 lbs. The cartridge case, however, was carefully steered under water so as to place it in the hollow of the root, *i. e.* just under the center of the log. The destruction of the latter was immediate and entire, both logs having been removed in three hours and a half at a trifling expense.

The author adds that the reason why holes were not bored in the logs and piles was that the cost of labor for that operation under water would have greatly exceeded the cost of the additional weight of dynamite necessary for an effective "free" charge, which is not at all dangerous in water beyond a radius of a few yards. No other means, he considers, would have removed these obstacles so quickly and so cheaply.

E. D'A.

* For details of these, see *Revue Universelle*, p. 346.

† Abstract of a paper in the *Wochenschrift des Oest: Ingenieur-und Architekten-Vereines*, Vol. ii., p. 98. From the Minutes and Proceedings of the Institution of Civil Engineers of London, edited by James Forrest, Secretary.

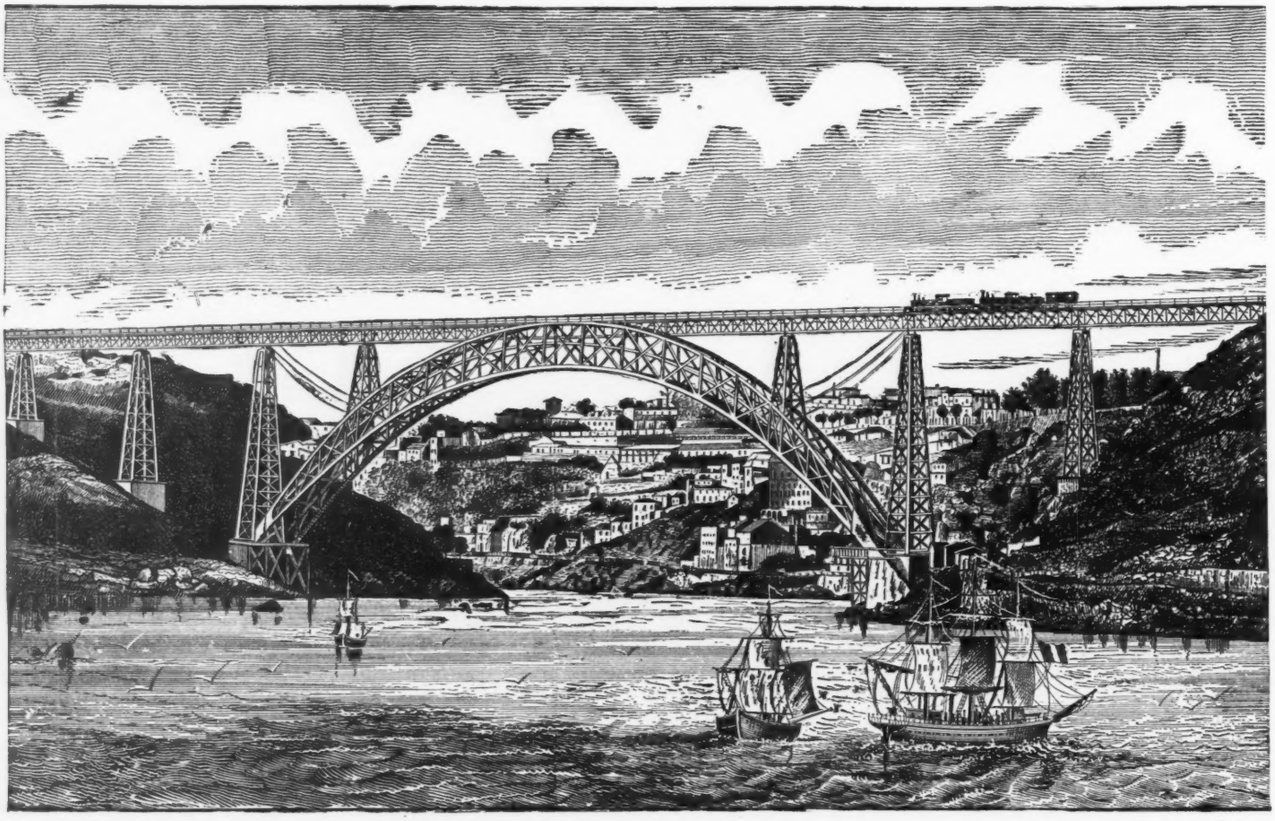
THE LARGEST ARCH IN THE WORLD.

From Leffel's Milling News.

We are indebted to Mr. C. H. HOLBROW, of Oporto, Portugal, for a photograph of a magnificent iron railway bridge, recently erected over the River Douro, one mile east of the city of Oporto, an engraving of which we herewith present.

Portugal is divided into three parts by means of the two rivers, Tagus and Douro. From Lisbon, situated at the mouth of the Tagus, a railway has for some years been constructed to Oporto, but having its terminus on the south bank of the Douro. From Oporto another railway has also been constructed, running into the northern provinces, but it commences on the north bank of the river. Thus all traffic coming from Lisbon and other localities in the south destined to places north of Oporto has, of a necessity, been carted by horses or bullocks across the river, and reloaded, causing great expense and delay. This bridge has opened a direct communication between the South and North of Portugal as well as the North of Spain, which adds vastly to the general resources of the country.

In the first place, good solid masonry was built from granite quarried on the spot, on which the several sets of pillars were erected, there being four pillars in each set.



RAILWAY BRIDGE ACROSS THE RIVER DOURO, NEAR OPORTO, PORTUGAL.

This having been done, the lattice and frame work for supporting the road was fixed upon the ground, on the top level on either side, and when little more than double the length of the distance from the beginning of the bridge to the first set of pillars was complete, it was pushed centerward until one end rested on the top of them; more was added and again pushed on to the second let, and so on until it projected over these pillars on the edge of the river as far as the two sets erected, having their base fixed on the arch. Next the arch was commenced. The four springers are heavy cast-iron plates securely bolted to the masonry, and each pair, viz., two plates on either side, are apart twice the distance of the girders on the crown of the arch, thus giving the structure a pyramidal inclination. The springers each hold a jaw into which the ends of the arch fall, thus forming a hinge. For the first fifteen or twenty feet, it was necessary to erect a wooden frame work, on which the first part of the work rested; afterward it was supported by wire ropes, passed underneath the upper set or guides, and secured to the tops of the two sets of pillars, nearest the river. These ropes were again moved nearer the center as the work progressed. Two gangs of workmen were employed, one on either side until they met each other, the lower part being shut first. The arch finished, the two more central sets of pillars were built and then the remainder of the lattice work. Finally the track was laid on the top of this, and the bridge was complete.

The whole was made in Paris and sent out here in its separate parts. The total length from end to end is 1,150 feet width of arch 520 feet, and height from low-water mark to crown is 198 feet, being 30 feet higher than the Falls of Niagara. The builders claim this to be the first bridge erected on this principle, and the arch to be the largest in the world. The work has taken a little over two years to accomplish.

The bridge was opened for travel, in the early part of November last, by the King of Portugal, with great ceremony and rejoicing.

THE METALLURGY OF NICKEL.

By M. Badoureau, in Annales des Mines.

[*Continued from page* 274.]

Each of the first melting furnaces passing 5 tons of ore per day, these two furnaces give 4·5 tons of matt daily. They run 200 days a year to pass the 2,000 tons of ore, which give 900 tons of first matt. The furnace for second melting passes only 3·5 tons of calcined matt, and should therefore run 260 days a year. The latter furnaces are lined with refractory bricks from San Cristoforo, in Savoy. Their duration is eighty days.

Blowing Apparatus.—There is one blast-engine to the three furnaces. The blowing cylinder is $0^m{\cdot}80$ in diameter, and $0^m{\cdot}80$ long, and is driven by a turbine. The chimney by which the burnt gases escape is too high, and the draught too strong, so that there are considerable losses by volatilization: it is intended to shorten the chimney. Brasque is ground in a little mill driven by the turbine.

Results.—At Scopello 2,000 tons of ore are dressed per annum. The 2,000 tons of ore containing 1·8 per cent. metal are converted into 120 tons of matt containing 30 per cent.

ILLUSTRATIVE EXAMPLE FROM THE WORKS AT SAGMYRA.

Sagmyra ore is poorer than Italian. It is thrice melted, each melting being prefaced by calcination, and very rich matt is thus obtained. Sagmyra ore contains no cobalt, but, as we shall see further on, the copper it contains is utilized, while that contained in Italian ore is lost. At Sagmyra 6,000 tons of ore, containing 0·6 per cent. nickel and 0·7 per cent. copper are heated per annum.

I. *Ore Roasting.*—The ores are roasted in pyramidal heaps containing from 300 to 400 tons of stuff; the roasting is continued for four or five weeks.

II. *Melting for First Matt.*—The calcined ore is melted in a furnace which has a trapezoidal section, the distance between front and back faces being $0^m{\cdot}96$. The height of the furnace from the tuyeres to the throat is $3^m{\cdot}80$, plus $0^m{\cdot}35$ below the tuyeres. The top part of the furnace is free, but it has a gasway at the side, the gases going to a reverberator. The furnace is lined on the inside with granite and on the outside with bricks made at the works from slag from the first melting. There are three tuyeres at the back and one tuyere on each of the sides, the matt and the slag being run off in front. This furnace has a certain analogy with the Raschette furnace; it seems, however, that it consumes less fuel, and gives rise to a smaller formation of ferruginous bears than a Raschette furnace of the same dimensions.

The weight of ore melted per day is from 10 to 12 tons, a mixture of coke and charcoal being burnt for fuel when the former is available. When the fuel is charcoal only, 210 hectoliters per day are consumed. When ore from lode No. 1 is passed at this melting, 20 per cent. quartz is added to it, and the matt got from it contains 2 to 4 per cent. nickel and a similar amount of copper. When ore from lode No. 2 is passed, it is melted by itself, the matt containing 4 to 7 per cent. nickel and 5 to 8 per cent. copper. The average amount of nickel in first matt at Sagmyra is 4 per cent. and of copper 4½ per cent.; about 900 tons of first matt are produced per annum.

III. *Calcination of First Matt.*—The first matt is calcined at 4 or 5 fires, the stuff being heaped between dwarf walls which form a sort of open kiln. Each heap contains 25 tons of matt.

IV. *Melting for Second Matt.*—After calcination the first matt is melted in a furnace of about 3 meters in height with closed breast. The slag is tapped in front and the matt behind, the latter running into water in which it takes on a granular form. Its composition is: Ni, 25–26; Cu, 25–30; Fe, 26; S, 25–30; total, 100. The batch consists of: Calcined first matt, 100; quartz, 15; total, 115. Up to the present time, the stuff was fed in merely in broken pieces, but successful trial has been made of the method following. The matt is granulated on first melting, instead of being run into cakes; the quartz is ground to a coarse sand; the grains of matt and the ground quartz are scattered on the floor and made into a stiff paste with a milk of lime or clay. This paste is cut into cubes measuring 10 centimeters each way, and these cubes are dried either by exposure to air or to artificial heat. Owing to the more intimate connection into which the matt and the quartz are brought, the working is better, fuel is economized and less metal is lost.

V. *Calcination of Second Matt.*—Second matt, after granulation, is calcined in a continuous reverberatory furnace. This furnace is provided with five doors—two on one side and three on the other, the heat being derived from the gases of the first melting furnace. The matt remains in the furnace for a period of twenty-four hours at most. The furnace is charged at the further end of the hearth and discharged at the opposite end.

VI. *Melting for Third Matt.*—The second calcined matt is melted in a reverberatory furnace. Quartz is added in the proportion of the iron contained in the matt, or about 20 per cent., and about half as much white glass is put in. Third matt has the following composition: Ni, 35; Cu, 40; Fe, 0·2–0·4; S, 22.

Results.—100 tons of third matt are made per annum at Sagmyra. Up to the present time this matt used to be sent to the Victoria dressing floor at Namburg, but it is intended to treat this matt for the future at Sagmyra.

The following experiment has lately been tried with success at the Sagmyra dressing floor. A part of the first matt is granulated, and, instead of being sent to be calcined, it is treated in a wooden vat, at the ordinary temperature, with very weak sulphuric acid, made at the works. A large proportion of the iron dissolves, carrying with it traces of nickel. The solution is crystallized for sulphate of iron, and the residue is treated as second matt, dried, calcined, etc. This process would be adopted for the whole bulk of the stuff, in lieu of the operations described above at III. and IV., if there were means of disposing of a large quantity of sulphate of iron.

(TO BE CONTINUED.)

MODERN EXPLOSIVES.*

Nitro-glycerine (or Glonoine), discovered in 1847 by Sobrero, is the most important of all explosive compounds at the present day. Sobrero did not make any practical application of it, and it was not until 1863 that ALFRED NOBEL brought it into general use as a blasting agent. His first patent for it in America is dated October 24th, 1865. The interest in his American patents was assigned to the United States Blasting Oil Company, represented by TAL. P. SHAFFNER. These patents for nitro-glycerine applied as a blasting agent are now (1877) held by the Giant Powder Companies.

Among published documents on the subject, the earliest full account of the use of nitro-glycerine in blasting in America is given by Mr. E. P. NORTH, in a paper read before the American Society of Civil Engineers, March 4th, 1868, on his experience in "Blasting with Nitro-Glycerine on the New Canaan Railroad."

Nitro-glycerine is a light yellow, clear, oily liquid, odorless, has a pleasant, sweet taste, is poisonous when inhaled, swallowed, or introduced into the body through the pores, producing headache and sickness. Its specific gravity is 1·595 to 1·6; it freezes when clear and transparent, at 39° to 46° F. (about 40° C.).

Nitro-glycerine is dissolved with difficulty in water, readily in ether, pyroligneous spirit, or alcohol, the solution being non-explosive. Pure nitro-glycerine is not sensitive to friction or moderate percussion. If placed upon an anvil and struck with a hammer, only the particle receiving the blow explodes, scattering the remainder.

Experiments† have shown that pure nitro-glycerine, confined in vessels of tin, glass and wood, did not explode when dropped from a height of 85 feet (26 meters) upon rock.

On the other hand, it should be borne in mind that this can only be affirmed positively as to pure and well-washed nitro-glycerine, in which there is no tendency to decomposition. It seems to be well established that nitro-glycerine inclosed in metallic vessels, especially in those of iron, is liable to explode when the vessel is struck by a sharp blow.

Hill,‡ however, on the question of its storage and transportation, advises keeping nitro-glycerine in large earthen jars, with a layer of water over it. If it is to be transported, he advises freezing it, and carrying it in the frozen state, when it is far safer.§ That nitro-glycerine, when frozen, is difficult to explode, was probably first practically (though involuntarily) demonstrated by W. P. GRANGER, in the winter of 1867–68. (Experiments have since unquestionably shown, however, that if the exploder used be sufficiently strong, even frozen nitro-glycerine can be exploded.)

For transportation, it should be put in strong tin cans holding about 45 or 50 pounds. Each can should be paraffined on the inside, and have passing vertically through the center a tin tube, so that freezing or thawing may be more easily accomplished. All vessels in which nitro-glycerine has been kept should be destroyed when not wanted for the same use, as the nitro-glycerine is not easily washed off.

Pure nitro-glycerine does not spontaneously decompose at any ordinary temperature, but if it contains free acid, decomposition is apt to occur. No instance has yet been noticed of the spontaneous decomposition of properly made and purified nitro-glycerine.

With increase of heat at 212° F. (100° C.), decomposition does not occur, but at 320° F. (160° C.) red vapors are evolved, and at 356° F. (180° C.), its firing-point, sudden decomposition, accompanied by vehement explosion, ensues.

(The firing-point is maintained by some to be 360° F. rather than 356°.)

Nitro-glycerine is composed of carbon, hydrogen, nitrogen and oxygen. Its formula is (HILL), $C_3H_5N_3O$ or $C_3H_5(NO_2)_3O_3$—this is trinitrine; monitrine, $C_3H_7(NO_2)O_3$, and dinitrine, $C_3H_6(NO_2)_2O_3$, occur when thorough conversion into trinitrine is not effected in manufacture, but the nitro-glycerine in ordinary use and of which dynamite is made is the trinitrine. The explosive force of nitro-glycerine undoubtedly results from the sudden production of watery vapor, carbonic acid, and nitrogen gas at a very high temperature, by a union of the oxygen present in the nitric acid with the hydrogen and carbon of the glycerine; in other words, the oxygen of the nitric acid plays the part in nitro-glycerine which the oxygen of the nitric acid in niter plays in ordinary gunpowder. Now, in trinitro-glycerine or trinitrine, there is a slight excess of oxygen present, while in dinitro-glycerine there is a considerable deficiency, by reason of which, what we may call the combustion of the carbon and hydrogen would be incomplete in the latter case; the combustion would be imperfect, and the force developed therefore less, just as it would be in gunpowder which contained too small a proportion of niter.

The gases evolved, when complete explosion is effected, are, acccording to SCHOEN, carbonic acid, nitrogen, oxygen and water. The gases are given by MOWBRAY, according to an analysis of M. L. HOLE, as:

Carbonic acid	45·72
Binoxide of nitrogen	20·36
Nitrogen	33·92
	100·00

TRAUZL‖ gives the gases as "chiefly carbonic acid and nitrogen," mixed in such proportions as not to be dangerous on inhalation. But when incomplete combustion takes place, carbonic oxide and oxides of nitrogen are formed, which are injurious, and it is owing to the fact that careless or ignorant firing is apt to be attended with incomplete detonation of the nitro-glycerine, that gave rise to the early misconception that the gases evolved were dangerous. This error has, however, been corrected by increased familiarity with the glycerine compounds. The explosion of 1 gram (0·035 oz.) of nitro-glycerine at the temperature of 32° F. (0° C.) and barometrical pressure of 760mm. (29·922 in.) gives 2000 cub. ctm. of gases which exercise a theoretical pressure of 26,000 atmospheres, corresponding to a theoretical effect of 400,000 kilogrammetres, or 2,893,000 foot-pounds. The temperature, on explosion of the gases, is placed at 9392° F. (5200° C.) (TRAUZL.)

THE DETONATION OF NITRO-GLYCERINE.

Nitro-glycerine is, in fact, emphatically a detonating, not an igniting, compound. In other words, it is an explosive of the first order. Its full effect can only be completely brought forth by the shock caused in exploding some other explosive compound in sufficiently close proximity to it, so that the concussion affected by the latter shall induce a sympathetic explosion, or rather detonation, in the nitro-glycerine itself. This effect can be reached, but only partially, by the use of ordinary gunpowder. Strong fulminating caps are the best, and these are now manufactured expressly for the purpose, and they are fired by either an ordinary fuse or by electricity, their detonation causing that of the body of nitro-glycerine in which they are inclosed.

(TO BE CONTINUED.)

NEW PATENTS.

The following is a list of the new inventions relating to Iron, Coal, Mining Machinery, Chemical Apparatus and the treating of Precious Metals, etc., from the official *U. S. Patent Gazette*, for week ending March 26:

No. of Patent.	*Title of Invention.*	*Name of Inventor.*	*Residence.*
201,588	Low Water Signals for Steam Boilers	Thos. Bingham & Co.	Pittsburg, Pa.
201,613	Utilizing Waste Heat of Furnaces	John Hutton	St. Louis, Mo.
201,619	Oil-well Sprinklers	John C. Lorenz	Petersburg, Pa.
201,646	Ore Crushers and Grinders	Charles M. Brown	Chicago, Ill.
201,661	Pistons for Steam Engines	Nathaniel Foust	Edenburg, Pa.
201,692	Stamp Mills	Jas. M. McFarland	VirginiaCity, Nev
201,752	Shaking Grate Bars for Steam Boilers	Roys J. Cram	Detroit, Mich.
201,760	Speaking Machines	Thomas A. Edison	Menlo Park, N.J.
201,761	Motors	W. D. Edgar & Co.*	Ottawa, Kan.
201,762	Apparatus for the Manufacture of Salt	William W. Elmer	Bay City, Mich.
201,778	Emery Wheels	Gilbert Hart	Detroit, Mich.
201,808	Furnaces for Producing Gases for Heating and other purposes	Philip W. Mackenzie	Blauveltville, NY
201,817	Coal Breakers	Joseph B. Miller	Wilkes-Barre, Pa†
201,853	Working Barrels for Oil Pumps	Charles E. Weible	St. Petersb'g, Pa

RE-ISSUES.

8,141	Dynamo Electric Machines	Edward Weston†	Newark, N. J.

*Assignor (½ right) to Simeon H. Merrill, Ottawa, Kan.
† " ½ " Roberts & Havell, Newark, N. J.

REYNOLDS' NEW POWDER.—A new explosive agent has been discovered by Professor Emerson Reynolds, Professor of Chemistry, Trinity College, Dublin. It is a mixture of 75 per cent of chlorate of potassium with 25 per cent of a body called sulphurea. It is a white powder, which is very easily prepared by the mixture of the materials in the above-named proportions. The new powder can be ignited at a rather lower temperature than ordinary gunpowder, while the effects it produces are even more remarkable than those caused by the usual mixture. Dr. Reynolds states that his powder leaves only 45 per cent of solid residue, whereas common gunpowder leaves about 57 per cent. It had been used with success in small cannon, but its discoverer considered that its chief use would be for blasting, for shells, for torpedoes, and for similar purposes. Dr. Reynolds pointed out that one of the advantages this powder possesses is that it can be produced at a moment's notice by a comparatively rough mixture of the materials, which can be stored and carried without risk so long as they are separate. The sulphurea, the chief component of the new explosive, was discovered by Dr. Reynolds about ten years ago, and could be easily procured in large quantities from a product of gas manufacture which is at present wasted.

* Condensed from advance proofs of *A Treatise on Tunneling, Explosive Compounds and Rock Drills*. By Henry S. Drinker, Mining and Civil Engineer. Published by John Wiley & Sons, New York. (Copy-righted.)

† Schoen, "Der Tunnelbau," p. 68.

‡ On Explosives, p. 33.

§ See also, on the transportation of nitro-glycerine, Mowbray on Trinitro-glycerine, p. 70.

‖ "Explosive Nitrilverbindungen insbesondere Dynamit und Schiesswolle."

THE SAN JUAN (COLO.) SILVER MINES.

Special Correspondence of the Engineering and Mining Journal.

Having received several letters lately asking where the mines of San Juan are situated and how reached, I propose to give you a short description of our locate, which may be of use to intending visitors. To do this I can not begin better than by quoting from a letter to the Pueblo *Chieftain* by Prof. Clayton, who is a good geographer, and knows what he is writing about:

"The San Juan mines are situated on the outer curve of the continental divide, opposite and west of the head of the Rio Grande River. The metal-bearing area is from the heart of the Los Pinos, southeast of the apex of the curve, around to and including the head-waters of the Lake Fork of the Gunnison River on the north side. Following the curved line around the west flank of the range through the heart of the mineral belt, the distance is about sixty miles. Its greatest width is nearly opposite the western apex of the curve on a line extending from the head of Cunningham Gulch northwesterly to the western spurs of Mount Sneffels, a distance of thirty miles. The general shape is a crescent, broad in the center and narrowing rapidly toward the two points.

"The Los Pinos and Animas rivers drain the southeast end of this crescent. Lake Fork and the Uncompaghgre drain the northeast end, and the San Miguel and Dolores rivers drain the west flank."

Now, if your readers will refer to Prof. Hayden's Drainage Map, having the above before them, they will understand the situation.

The richest and most important portion of this great mining center extends from the southeast side of Mount Sneffels and Mineral Point, say 15 miles northwest and southeast by ten miles wide from northeast to southwest. The town of Ouray, situated at the head of Uncompahgre Park is the natural center of this area, and, to quote again from Prof. Clayton, "will become a very important point for reduction works, and will be the most important mining and metallurgical center on the northern flank of the San Juan mining belt."

But where I consider this area has an immense pull over the Animas and Lake districts—of which Silverton and Lake City are the centers—is the fact that immediately west of us, we have not only a grazing and stock-raising country not to be surpassed, but also a natural road from Ouray to Utah; and from that Territory we look for abundant and cheap supplies. Last fall several wagon loads of flour came in from there and sold in Ouray for $8.50, while Colorado flour was selling in Silverton for $12. Last month, a load of 300 dozen of eggs came to Ouray from Utah. It is said to be an almost level road, with the exception of the crossing of the Wahsatch Range, the pass, however, being at so low an altitude that there is hardly any snow on it during the whole winter. The only present drawback is that the rivers are not fordable in May and June, but bridges and ferries are now being built over them.

Now, the Lake and Animas districts are at present dependent on the eastern slope of the main range for their supplies, and there is no direct approach to the San Juan region from the east side. All the mines are west of the continental divide; and I maintain that the district most readily reached from and contiguous to the West, as a mart of supplies, will naturally attain the greatest prominence, and its mines be the most flourishing.

Now, as to the route from the East to Ouray. Of course every traveled American has his favorite line of railway, and knows as well as I can tell him which way to come; but to him who has never been West I should say take the Pennsylvania Railroad train, leaving Jersey City about 8.30 P. M., with through sleeper for St. Louis, arriving there about breakfast time on the second morning. From there we have the choice of two lines to Kansas City—twelve hours. From Kansas City take the Kansas Pacific Railway to Denver—thirty hours. You *can* go a somewhat shorter route to Pueblo, by the Atchison, Topeka and Santa Fe Railroad, but the fare is the same either way, and by the former you are enabled to see Denver, which certainly no one visiting the West should fail to do. From there the Denver and Rio Grande Railway takes you to Garland City—about fourteen hours. From Garland City, Barlow, Sanderson & Co.'s comfortable four-horse coaches convey you to Del Norte—sixty miles—across what is called the San Luis *Park*, but which I call the most hideous desert of alkali sand it has ever been my misfortune to cross.

There is some good land round Saguache at the upper end, where streams debouche from the mountains, but not enough to warrant the deceptive and *couleur de rose* phraseology adopted in calling it a "park." I never hear the name of San Luis Park but I think of Deacon Pogram's Eden.

From Del Norte you can make the trip to Ouray via Silverton or Lake City. If by Lake City, you can go by coach all the way—about 200 miles (90 to Lake and 110 to Ouray), or by coach to Lake City and by trail, 37 miles, to Ouray; but I should advise the visitor on reaching Del Norte to purchase a pony, which he can do for $50 to $100, saddle and bridle and lariat $20, and taking no baggage but a tooth-brush, ride to Silverton in three days—90 miles. To the lover of wildly beautiful scenery, this ride will be a never-forgotten treat. Moreover, the stopping places on the way, viz.: Peck's Hotel at the Hot Springs, Wagon-Wheel Gap, Galloway's or Brooks's, at Antelope Park, and Barber's at Lost Trail Creek, are most comfortable, and all set tip-top tables—plenty of game and speckled trout, and abundance of fresh milk, cream and butter, and good home-made bread; or if the traveler wish, he can go by coach from Del Norte as far as Antelope Springs, 45 miles, and, hiring a pony at Brooks's or Galloway's, ride the rest of the way. From Antelope Park to Silverton there is a fair mountain road and a good track besides, *i. e.*, in July, August or September. As far as Grassy Hill, it is plain sailing; from there to Howardsville, 4 miles, the ascent and descent are steep, and you cross the Range at an altitude of 12,200 feet by Cunningham Gulch Pass. I know men who do this 4 miles without getting out of the saddle, but I have always, in mercy to my beast, walked over.

From Silverton to Ouray is about 20 miles, a comfortable day's ride, with the choice of two trails—the Mineral Creek trail, via Mt. Sneffels or the Cement Creek trail, via Red Mountain Valley—the latter the most direct.

WHAT TO BRING, IF YOU VISIT SAN JUAN.

To him who intends paying this region a visit, I would say this: Don't let your valise weigh over fifty pounds, as it is needless to bring more, and the coaches charge 10 cents a pound extra for baggage over that weight. All you want is a corduroy suit and india-rubber coat and overalls of the lightest description, three best navy-blue flannel shirts, a pair of lace-up English walking boots, well nailed, and leather leggings, for walking and climbing, and a pair of top-boots for riding; and one light Tweed suit, which you will wear as far as, say Denver. An aneroid barometer you will find a very pleasant and useful companion, both in denoting altitudes, and (if stationary) forewarning you of the approach of a storm. Any thing else you want you can buy in Denver or Del Norte. Leave your revolver and brandy-flask at home, or, at least, don't bring them any farther than Denver; the former are only carried in San Juan by "tender-feet," and the air of the mountains you will find all the stimulant you need. Remember that after you leave Del Norte you will carry all your baggage in a roll on the back of your saddle. If you want a cold bath, there is the river at your side; if a hot one, there are most comfortable baths at the hot mineral springs at Wagon-Wheel Gap, and also in the town of Ouray, where the water from the hot springs now runs down the main street. There are good stores in Silverton and Ouray where you can buy any thing you really need. And don't leave New York before the 1st of June, but as it generally rains all through the month of July, I should prefer to reach here by the 1st of August, when you are sure of two months' uninterrupted beautiful weather. At this present date (April 18) a storm of wind and snow has been raging for four days, and I don't believe the snow will be off the mountains till the end of June. If you are a devoted disciple of Izaak Walton, bring a fly-rod, the lightest you can buy, twelve feet at longest, nine long enough, with gutta-percha reel, oil-silk line and a few dozen flies. You can buy india-rubber wading boots at any of our towns. The trout-fishing in the Rio Grande is simply superb, and you follow the course of that stream from Del Norte to its source, near the summit of the Great Range. The San Miguel Lakes, eight miles from here, also swarm with trout.

And now you have the route from New York to Ouray in a nutshell. As soon as I can get across the Range to Silverton and Lake City, I will tell you from personal observation what is going on in those camps. In the mean time, I must confine myself to cursory remarks concerning our mineral riches generally. Regarding ores, again I wish to caution your readers as to reports from here of ore that will "run up in the thousands." Such are utter nonsense, and as regards the impression they convey, worse than nonsense. I grant you there are hundreds of veins in this district out of which I could select a piece of gray copper, brittle or ruby silver which on assay *would* give such a return, but such an assay is utterly worthless and should not be quoted. The richest mine I know of in the San Juan is the Dolly Varden, owned by Mr. W. H. Van Gieson—pay-streak one foot wide, which, taken out solid and sacked up for the mill, runs 450 ounces to the ton. But this mine is 12,000 feet or more above sea level, and will require considerable capital and engineering skill to work it the year round.

Most of our mines producing the highest grade ore are above timber line; at a low altitude they seem, as a rule (on the surface at least), lower grade, and, of course, few of these have been worked; owing to want of reduction works near at hand, the ore would not pay to produce. There seems, however, to be a growing conviction among our miners that a low grade galena vein (say 50 ounces), with a big body of ore, is the mine to "bet on." The mineral is more continuous, and with depth increases in richness, which, as a rule, the former have not done here. Moreover, this belief is strengthened by the reports one constantly hears concern-these high-up and high-grade mines—that the mineral in the "Sweetly Dreaming" tunnel is "capped over;" in another, "the walls pinched up to a mere crack in the rock," and that "the mineral was played out," and so on.

Just now a mine producing 50-ounce ore would be worthless, for the reasons above stated. But let us look at another side of the picture.

We will suppose the capitalist comes here and obtains possession of a couple of good galena veins, having a foot of solid mineral, carrying 40 per cent of lead and 50 ounces of silver to the ton (which he can do for a few hundred dollars). The claims are in the middle of splendid pine timber, good water power and plenty of fluxes, if needed. He puts up a 10-ton smelter. His lodes (as most of ours are here) are on a site especially adapted for tunneling. The drifts being *on* the veins, his dead-work produces ore from the start, and it can, therefore, be produced for $5 per ton all round, as when he gets stoping ground it can be done for less than half that sum. Say he produces ten tons per diem, and it costs $5 to produce and $15 per ton to smelt, does not that leave a very comfortable margin? Or even divide that margin by two, is it not all the money any ordinary man would want as an annual income? Or, if he doesn't want to go to the expense of a smelter, let him put up a 10-ton concentrator, run his 10 tons into two, and it will even then pay enormously, even if he have to send it 20 or 30 miles on pack animals to reduction works. Now this, Mr. Editor, is what I call a safe investment and legitimate enterprise, and can and will be done here before very long. In the face of such facts I can not see the use of exaggerating our mineral riches. They are big enough, in all conscience, without. We have any quantity of veins which will produce hundred-ounce ore with a pay streak of from six inches to two feet in width and in good places to work. Any man of ordinary mining experience knows what an enormous bonanza one of these would be if properly worked and with reduction works near by.

Another most important advantage we have over other mining districts is the width and strength of our veins, their frequency, and most especially their peculiar adaptation for tunnel work, the drifts being nearly all *on* the veins, and the depth gained in a large proportion of instances, foot for foot.

A gentleman, a large mine owner in the North of England, who had read some of my letters in the London *Mining Journal* concerning this region, wrote me for information, and I replied, describing some of our veins, and I make the following quotation from his second letter: "I have been a lead miner in the carboniferous, or lime, of this county many years, and we think, here in ——shire, that a trial drift with an expenditure of a few thousand pounds is worth doing, with a *speculative* prospect of reaching a *galena* vein bearing ore and matrix five or six inches wide, the ore from which, when crushed, cleaned and dressed, ready for the smelt mill, is worth about £12 per ton on the dressing floors of the mine. You will then readily understand how amazedly I am struck with the richness of the mines, and the quantities of ores you tell about, and even allowing for the change of circumstances consequent upon a new and undeveloped country (want of roads, transit, etc.), there must be a good margin of profit for the *miner*, but more especially for the *smelter*."

Now look at the contrast. My partner and I are at work on a claim—the drift on the vein; we have a good site for five levels on our 1500 feet, in which we should gain an average of six inches in depth to every foot we drifted. We have run 80 feet since the 3d of last January, and my aneroid tells me we are 45 feet below the surface. Thus you see we can drain our mine by levels, and need no expensive machinery for either that or hoisting, and consequently can produce most economically. Most of the good lodes in the district are similarly situated.

At the time I wrote to the gentleman, from whose letters I have quoted above, I had visited the mines around Silverton only, and I think I described to him, among others, the "Pride of the West," now reported sold to a St. Joe (Mo.) Company for $125,000. The mine is at Cunninghame Gulch, six miles from Silverton, about 400 feet above the road, and when I saw it last July they had cut the vein with a tunnel at 100 feet and showed six feet of nearly solid mineral, galena, heavy gray copper associated with it, and running 60 per cent of lead and about 40 ounces of silver to the ton. With a smelter to reduce it to ores, such a property should be worth a million.

W.

SILVER IN MISSOURI.

Special Correspondence of the Engineering and Mining Journal.

Among the mining items in another column of this issue, I give some particulars about the Einstein Silver Mountain in this State. Personal examination convinced me of the existence of a true lode. Its richness in silver will be determined within a few months. The divers assays made with specimens from different parts and depths of the vein prove that the percentage of silver increases with the depth; that the vein rapidly widens, and that with proper dressing works, the lead alone will pay the total expense. It is claimed that the ton of gross ore will yield the average percentage stated in the mining items. As I have taken no gross specimens, nor watched the assays, I withhold the expression of my own opinion on the matter. I can state as a fact that prior to the organization of the Silver Mountain Mining Company, on 120 acres of which the vein traverses half a mile, Mr. EINSTEIN was offered first $10,000, then $15,000 for one fourth interest in said tract by Mr. CHADBOURNE, one of the directors of the St. Louis Silver Smelting Works, and by an Eastern party. The same vein has been traced to other tracts of land, and the owners of the desolate mountain ranges are sought for with a vengeance. The feature that the Missouri mines are exempt from the United States Mineral Reservation is an important matter, as it enables a few parties to control miles of mines (if there) by the mere title to the

surface. The 120 acres of the Silver Mountain Company were originally purchased by Mr. EINSTEIN for $800.

This enterprising gentleman deserves his present success, after years of expensive and unsuccessful operations in the Fremont mines of Jefferson County. If Missouri becomes a factor among the silver-producing States, it will be due to him alone.

Numerous other places presumed to be genuine lodes are being taken up, and will be prospected this summer. I shall report on them after inspection.

The southeastern part of this State will be the scene of active explorations. In the mean time, there are no signs of excitements of wildcat operations. It will be time enough to mark them when they appear.

The Desloge mine has been opened with great, deserving energy, and promises to afford great facilities and advantages after having reached the requisite depth and extent of excavation. The vein rock in these mines measures about 20 feet, and lies with a slight dip. The galena contains nickel and cobalt like the La Motte deposits. The services of an expert have been engaged for the construction of furnaces to utilize said ores.

The smelting capacity of the St. Joe and Desloge Works is 200,000 lbs. of metal per week; the development of the mines sufficient to turn out double that amount, if dressing, smelting, and other facilities were proportionally advanced.

St. Joe needs a railroad. It has become quite a town. The nearest station is Cadet, 9 miles distant, and the road to it abominable.

The St. Joe and Desloge superintendents, General PARSONS and Mr. FIRMIN DESLOGE, are opposed to Missouri playing *possum* in the lead market, and will be found ready to meet any competition, but they favor the conservative policy of the Pig Lead Association, and claim that but for the Association, lead would have been forced down to 3 cents.

Hard lead brought $3.40 in St. Louis last week; soft Missouri and desilverized, $3.50; while in New York it was offered at $3⅝, which is ¼ in favor of the St. Louis market, counting difference in expenses, etc.

ILLINOIS.

Collinsville, ten miles from St. Louis, on the Vandalia Railroad, is a lively place when the miners are not on a strike. I found all quiet last week and nothing doing. A few miners were permitted to provide coal for the Lunnaghi Zinc Works, which has two ovens running, making from 1700 to 1900 lbs. of spelter each, every 24 hours. These works are furnished exclusively with silicate ores.

There are eleven coal mines in Collinsville and vicinity, shipping lately from 80 to 100 cars a day, but none at present, on account of the strike. The vein, from 7 to 8 feet thick, lies 150 feet beneath the surface, and has a splendid roof. The following figures may be of interest: Mining, 2 cents per bushel; hoisting and loading, $1 per car; freight to St. Louis, 2½ cents; bridge, $5 per car; average total, 6½ cents per bushel.

KANSAS.

Mr. N. P. GUTELIUS, the manager of the coke works on the Joplin Railroad, and operating on the lands of the Joplin Coal and Mining Company, contracted with the Omaha Silver Smelting Works for furnishing them with all the coke required for said establishment, being about 375 cars per annum. Mr. GUTELIUS is in St. Louis ordering material for the erection of fifty additional ovens at Pittsburg and Carbon, Kansas.

PHOSPHATE DISCOVERY.

Prof. WM. PATRICK, of the Lawrence University, has discovered great quantities of phosphate of lime 321 miles west of Kansas City.

MINING NEWS.

Special Correspondence of the Engineering and Mining Journal.

COLORADO.

GILPIN COUNTY.

The Bobtail, Gregory and Kansas furnish very much the same ore supply, and keep the same number of stamps in motion from one year's end to another. The Bobtail Company employs 95 mill stamps, 200 men, and produces about 70 tons of ore daily; monthly yield, over $25,000. Other parts of the same lode produce smaller quantities. The Gregory crushes about as many tons of ore, but the ore is usually of poorer quality. About 160 men are employed in mines and mills. The New York and Colorado portion of this lode is looking better than in the winter, and has usually paid a small profit. The Kansas turns out from 40 to 50 tons of ore daily. The Gunnell is not yielding as largely as of late.

The main shaft of the Cashier has been sunk 50 feet, and is daily getting deeper. A depth of 175 feet has been attained. The west shaft is 40 feet deep, and is producing a considerable quantity of valuable ore, yielding about $12 per ton. The appearance of the mine is steadily improving.

The Cleveland Company's Alps-Mackie mine is not paying expenses, but might be made to do so. A party of leasers are making $8 per day each in one part of the property. It is said that the Alps shaft will be deepened 200 feet and that sinking will soon begin. There is a rich vein of ore from 18 to 24 inches wide between depths of 300 and 420 feet. About two cords of ore are raised daily.

The Consolidated Ditch water will soon be brought into Russell and adjoining gulches. Besides the old-time owners of many claims, parties of Chinamen have been buying claims in that section, which they will work. Between 100 and 200 Chinamen will work in the gulches of Gilpin County this season.

CLEAR CREEK.

Last month 184 tons of ore were sold from the Hukill mine, a part of which was the result of concentrations. The ore averaged over $100 per ton. When the dressing works in the Whale mill are completed, the sales of ore will be larger. Seventeen men are employed in the mine. But little stoping has been done so far, and few mines in Colorado can show as large ore reserves.

The Specie Payment employs 17 men and produces about 17 tons of ore daily, which supply the 25-stamp mill at Idaho, belonging to the company. This property is owned by a Troy (N. Y.) company; but like most Eastern investors, its members are trying to break themselves up by mismanaging a very valuable mine. The ore has yielded all the way from 3 ounces of gold per cord up to more than 20, the average being from 4 to 8. A very rich lot of ore has been met with in the lower level, 80 feet below the main entrance or working tunnel. The latest mill run from this gave 20 ounces per cord, or $40 per ton. Much fine gold is seen. The ore vein at that point is 20 inches wide; in other places from 2 to 4 feet.

THE SAN JUAN COUNTRY.

William West left Black Hawk last week for Lake City, where he will start up the Ocean Wave Smelting Works. These works ran from November, 1877, to February, 1878, and turned out 154 tons of lead bullion carrying considerable silver, and worth altogether $45,286.80. The ore supply is said to be ample to keep this concern always at work hereafter. In May or June Mr. West will proceed to Ouray over the range beyond Lake City, and superintend the erection of large smelting works to be put up there by a New Haven Company, of which R. W. Woodward is general agent. The process is like that at Golden and Lake City—smelting with lead riches. The works will have the richest district in the San Juan region to draw from, Mount Sneffles, near Ouray. The Uncompahgre gold diggings are paying.

RIVAL RAILWAYS FOR LEADVILLE AND UTAH.

A grand contest for the control of the country south of Trinidad and west of Cañon City is progressing between the Atchison, Topeka and Santa Fe broad-gauge and the Denver and Rio Grande narrow-gauge roads. The former has built west from the Missouri River into southeastern Colorado, 700 miles, to La Junta, and is headed for Trinidad and Santa Fe. A branch takes up the Arkansas Valley westerly to Pueblo. The D. and R. G. road extends from Denver south to Pueblo, 120 miles. A branch extends to Cañon City, 45 miles, and the main line passes south from Pueblo to Cucharas, where one line extends south to El Moro, near Trinidad, and another southwest over Veta Pass and the mountains to Garland and Alamosa in San Luis Park.

A month ago each of these roads attempted to seize the Raton Pass leading south into New Mexico, and each has since had men engaged in grading and blasting a way through the mountains. About April 18th these same companies made a simultaneous movement on Cañon City and the Grand Cañon of the Arkansas leading westward toward Leadville and Utah. The broad-gauge people reached the cañon first, but the Rio Grande folks afterward drove them from some of the best points. Meantime each company has been reinforced by about 100 men daily, injunctions have been got out on each, and that on the A. T. & S. F. has been raised, while large quantities of firearms have arrived on the grounds, along with a number of the inevitable lawyers. The D. & R. G. treasurer and chief engineer have been arrested and released for disregarding the injunction. On the 28th, each road had nearly or quite 1000 men grading at Cañon City, or blasting a way through the cañon and up the valley of the Arkansas, and the war daily waxes hotter. Jay Gould is at Pueblo, and is said to be backing the Denver & Rio Grande road. Supt. Strong, of the A. T. & S. F., conducts affairs on his side of the contest, and has set 175 men to building the road west from Pueblo to Cañon to connect there with the larger force at work at that point. The broad gauge is said to have $2,500,000 in its treasury for building purposes, and is surveying for a new road from Pueblo north to Denver—evidently intending to cut off the narrow-gauge at all points except in San Luis Park. So the Leadville mines and Western Colorado are likely to have railway communication much sooner than was expected.

The Grand Cañon of the Arkansas is one of the wonders of the West, and is one of the few, and perhaps the only available passage for a railroad westward through Colorado. It is near the plains and base of the mountains, one mile from Cañon City. Between its walls, which rise perpendicularly from 1500 to 2000 feet, and are from a few yards to a few rods apart, dashes the Arkansas River, which occupies the entire width of the bottom of the cañon. It was supposed that no railroad could be built up this cañon, as surveys could only be made in the winter, when the stream was frozen over, but nothing seems to be impossible to modern engineers and railroad builders. Cañon City never saw such lively times as during the past week.

MISSOURI.

A MISSOURI SILVER MINE.

The Einstein silver mine is located on the St. Francis River, Madison County. It is in the center of a large mountain range, covering parts of the counties of Iron, St. Francis, and Madison. This range consists largely of solid granite, partly covered with sandstone, conglomerates, and sometimes dipping under the lower Silurian rocks. The vein which is now mined was discovered some sixteen years ago, but was looked upon with great distrust, owing to the excessive spirit of wild speculation at other points which resulted disastrously, while little was done to probe the character of this deposit. The celebrated Tin Mine Fizzle had its seat within a few miles of the present silver mine. F. F.

Mr. Einstein, of St. Louis, has been prospecting on said silver mine for the past sixteen years. The vein is easily traceable on both banks of the St. Francis, as well as on the hill which it crosses at an angle of about 30° from southeast to northwest. The mountain rises 360 feet above the bank of the St. Francis. The first work was done on top by sinking right down on the vein, which is about 2 to 2½ feet broad. There had to be much time and money spent with no returns but the assurance of the improved character and increased breadth of the vein with greater depth. Then a tunnel was driven right on the vein from the right bank of the river, about 30 feet above its bed, and is at present 300 feet in length, the vein at that depth measuring from 4 to 4½ feet. Near the head of the tunnel the winze was sunk down on the vein 80 feet, at which depth it is over 9 feet wide, with most perfect hanging and foot walls. The gangue consists of quartz, and the ore is argentiferous galena, pyrites of iron and of copper, and other minerals. Assays made by reliable parties vary the contents of silver from 14 to 88½ ounces per ton of rough ore, with an average of from 20 to 30 ounces.

At the foot of the winze, as far as opened, is a 3-inch sheet of galena. In the other parts of the vein the ore is more generally scattered through the quartz near the foot-wall. The country rock red granite near the vein is more or less decomposed, but with so clearly defined walls as to resemble masonry. A company has been organized by Messrs. William Einstein, Gerard B. Allen and Samuel Knox, all of St. Louis, under the name of the Silver Mountain Mining Company. An experimenting furnace will be erected forthwith. The further development of this mine is awaited with much interest, and still more doubt, by the good St. Louisans, who can not believe it possible that such a good thing can possibly be so near them. If it were but a few thousand miles away, there would be no doubt about it. There are hundreds of tons of ore on the dump, and the mine open to the inspection of all.

A big strike of lead is reported at Granby.

In order to secure as much freight over their railroad as possible, the Lone Elm M. and S. Company, of Joplin, also the White Lead Company, pay the full value for neutral mineral. They also contemplate the building of a railroad from Joplin to Short Creek. In a few years Joplin will be the great spider in a web of rails. For pluck, go to Joplin! The grading of the Short Creek extension of the Joplin Railroad was commenced on April 29th.

The Land Commissioner of the St. Louis and San Francisco Railroad contemplates measures toward the revival of the great mining interests of the lands of the railroad company.

There are half a dozen Granbies in Newton County, and they should be opened. The intermediate half rations should be borne by all parties concerned.

ZINC.

Zinc mining in South East Missouri is getting very thin and unprofitable. Carbonates from Washington County bring $10 and $12 per ton delivered at St. Louis.

There is little doing at the Potosi mines. Barytes sells at $2.50 at the railroad.

IRON.

Sixty car-loads of Iron Mountain ore go daily to St. Louis for the present; also some red hematite over the St. Louis and San Francisco Railroad.

The St. Joe and Desloge lead mines are prosperous and progressive. The former, which is the oldest mine, has such extensive excavations in the mineral-

bearing rock that the company can make its selections of material for the crusher. Four years ago the feed for the crusher averaged from 8 to 17 per cent galena; at present it is 15 to 25.

NORTH SHORE OF LAKE SUPERIOR.

Our special correspondent sends us the following:

Mining affairs are about the same as at the beginning of winter. Silver Islet has lately had a small bunch of rich ore, valued at $3000, and considerable good stamp rock from the upper part of mine. The work on the false roof is nearly ready for the brickwork.

There is some encouragement that the explorations on the main land will eventually find pay ore, as there is a good vein bearing more or less mineral. Eighty barrels of rich ore were shipped to Wyandotte on first boat.

At the Duncan Mine, drilling with Bullock's Diamond Drill has been in progress to date, but is now completed without definite results. Much information of a negative kind has been obtained, and at some points good encouragement to continue prospecting was had. The shaft is down about 30 feet, following the indications. So far, there has been a great improvement in appearance of the gangue, and though the mineral assays but little in bulk, a small quantity can be dressed out that will assay well, whereas for the last 300 feet the same treatment would show but a trace. It is possible that some development may be made that was only hinted at by the drill. It is, however, soon decided, for if the next 80 feet show nothing, the mine is worthless.

Col. Wilson, at 2A Mine, has made good progress, in spite of hard ground. At the depth of 60 feet he is cross-cutting the vein which had dipped off from the shaft, more for the sake of finding the best place to continue sinking than that the right depth has been reached to find the lower silver belt that is so anxiously hoped for by all the North Shore mine holders.

Some specimens of mica have been shown as gold ore from Hay Lake, which is probably the end of that excitement. EZUEST.

MICHIGAN.

ANNUAL REPORTS OF LAKE SUPERIOR COPPER MINING COMPANIES.

We condense from recently published reports in our Lake Superior exchanges the following, showing the operations of various copper mining companies during the past year:

Atlantic Copper Mine.—The principal operations of this company for the year are given in the following, condensed from the *Mining Gazette:* "The agent's report is as follows:

The total amount of ground broken in openings and stopes was 7091 cubic fathoms.

During the year we sunk No. 3 shaft to the 10th level.

The product for the year was 2214 barrels of stamp copper and six masses, weighing 2,880,378 pounds, or $1440\frac{378}{2000}$ tons mineral, which yielded 2,054,304 pounds of ingot copper.

The yield of ingot copper per cubic fathom of ground mined was 289 pounds, a gain of 9 pounds per fathom on the yield for 1876.

The mill has been operated successfully. Three heads have been kept in operation throughout the year, and a larger amount of rock has been stamped than ever before, while the ratio of expense per ton of rock treated has been materially diminished.

During the summer we replaced the old trestle-work at the mill, which had become rotten and unreliable, by an entirely new structure, built in the most substantial manner, and adapted to the work.

We have dispensed with the old system of shutes, which were used to convey the rock from the trestle-work to the mill, and which were in every way expensive and objectionable. We replaced the shutes by a new rock bin, capable of holding 1000 tons, and by trestle-work connecting the rock bin with the mill. We have 4 double-track gravity roads on this trestle-work, laid with 50-lb. T-rails (one double track road to each head of stamps), which convey the rock in cars from the bin to the mill. Each gravity road is independent of all the others, and is fitted with two rope drums and a brake wheel. By means of these appliances *one man* transfers all the rock we now treat (about 360 tons per day) from the railroad to the mill with ease in about seven hours. When the rock passes from the large rock bin, it falls into the cars on the gravity roads, and is by them dumped into bins immediately behind each head of stamps, and from thence passes by gravity under the heads; all that is required is a little attention on the part of the person in charge simply to regulate the distribution of the rock, whereas formerly all the rock treated had to be shoveled, thus involving a large amount of laborious work. The improvement has enabled us to dispense with the services of six men, or one half the number formerly engaged in feeding the stamps. We also save the large amount of labor and materials which was continually required to keep the shutes in working order.

The sales of copper have been made at an average price $2\frac{81}{100}$ cents per pound lower than in the previous year. The profits of the year are, however, slightly in excess of those obtained in 1876, which shows that there has been a decrease in the cost of production fully equal to the decline in price. The yield of the rock stamped was $19\frac{42}{100}$ pounds of copper per ton, against $18\frac{98}{100}$ pounds in 1876. From the appearance of the mine it would seem probable that this increase of yield would be maintained during the current year; and with the benefits arising from the improvements made during the past year, combined with lower prices of labor, there is reason to believe that the cost of production will be still further reduced in 1878.

TABLE SHOWING THE EXPENSE PER CUBIC FATHOM OF GROUND MINED AT THE ATLANTIC MINE FOR THE YEARS STATED.

	1874.	1875.	1876.	1877.
Total running expenses and marketing	$62.62	$61.61	$53.10	$47.46
Construction expenses		6.13	83	1.84
Net expenses of mining and marketing	$62.62	$55.48	$52.27	$45.62

TABLE SHOWING THE RATIO OF RUNNING EXPENSES AND COST OF SMELTING AND MARKETING PER TON OF ROCK STAMPED AT THE ATLANTIC MINE FOR THE YEARS STATED.

	1874.	1875.	1876.	1877.
Cost of smelting and marketing	$0.59	$0.56	$0.56	$0.49
Running expenses at mine	3.50	3.34	2.98	2.58
Total runing expense, smelting and marketing	$4.09	$3.90	$3.54	$3.07

The number of tons of rock stamped were.....105,780
Yield of mineral per ton of rock stamped ..... 27·25 lbs.
Yield of ingot per ton of rock stamped ..... 19·42 lbs.

The total cost of stamping and washing was 57·19 cents per ton. This includes the cost of working the tail house and every thing pertaining to the mill as heretofore.

The total amount of rock carried one mile during the year was 330,562 tons, at a cost of 3·89 cents per ton per mile. This includes the cost of $102\frac{113}{2000}$ tons of new 56-lb rails and fittings laid upon the road in July, amounting to $4,280.18.

The total average force employed throughout the year, including officers, was 352. For each man of the total force employed, 20·14 cubic fathoms were mined during the year.

Statement showing cost and amount of underground work done during the year:

Stoping $6801\frac{1372}{2000}$ cubic fathoms, at $16.24	$110,509.33
Drifting $1532\frac{4}{10}$ feet, at $11.83	18,128.50
Sinking $102\frac{7}{10}$ feet, at $36	3,697.20
Timbering, tramming and day work	25,445.76
Powder, candles, fuse, etc., used on company account	2,568.06
	$160,348.85

Allouez Copper Mine.—The Ontonagon *Miner* says of this mine: "The drift at the eighth level has been extended north 111 feet, and has been in good rich vein all the way. The stopes from this level have been carried up some 55 feet, leaving about 40 feet more back between the eighth and sixth levels to be beaten away. The drift has been stopped temporarily, and a Burleigh drill is now at work in the end of drift, cutting out, another drill being employed in stoping.

No. 2 shaft, which was sunk 70 feet toward ninth level when the tribute company began operations, has been continued to ninth level and drifting has been begun north and south. 125 feet south of shaft a winze has been sunk to ninth level and a drift will be at once begun from bottom of winze toward the shaft. It is expected from the favorable appearance of the drifts north and south of shaft at ninth level, that the shoot of copper ground which has been so productive in the back of the eighth level will be found continuous between the eighth and ninth levels. The seventh fevel has been extended from No. 1 shaft about 75 feet and holed No. 2. Previous to the extension of this (7th) level the mine between Nos. 1 and 2 shafts was entirely closed, the ground from the bottom of the 6th to the 2d level has caved in and left no communication whatever between the two shafts, thus practically stopping all work in this portion of the mine. The 8th level is being driven north from No. 1 to No. 2, and from a winze 125 feet north of No. 1 a party is carrying a drift to connect with the one coming from the shaft. About 370 feet remain to be drifted to connect Nos. 1 and 2 shafts at the 8th level, which will then present a back for stoping 600 feet in length from shaft to shaft, and ninety feet high. The drifts north and south of No. 2 shaft at 8th level are opening up an equally extensive block of ground; 42 men have been constantly employed in opening since the beginning of operations."

The Central Copper Mine.—The Agent's report of the operations of this mine during the past year, as published in the *Mining Gazette*, is as follows:

"The sinking done in shafts and winzes aggregates $260\frac{7}{12}$ feet, at an average cost of $33.50 per foot.

"The drifting on the vein aggregates 1267 feet, at an average cost of $11.53 per foot.

"The drifting on the conglomerate aggregates $184\frac{1}{4}$ feet, at an average cost of $13.47 per foot.

"The stoping on the vein aggregates $1743\frac{2}{3}$ superficial fathoms, at an average cost of $18\frac{61}{100}$ per fathom, and $417\frac{14}{16}$ cubic fathoms, at an average cost of $20.73 per fathom.

"The stoping on the conglomerate aggregates, $236\frac{1}{30}$ superficial fathoms, at an average cost of $21.70 per fathom.

The ground broken in openings and stopes aggregates 3269 fathoms.

"The following will show the present extent of the openings:

DEPTH OF SHAFTS.

No. 1 shaft	371½ feet.	No. 4 shaft	1463½ feet.
" 2 "	1430½ "	Inclined shaft	1508⅝ "
" 3 "	244 "		
Total			5118¼ feet.

Total length of levels, $28,357\frac{1}{2}$ feet.

"The product of the mine for the year was:

957 bbls. stamp copper, weighing	1,188,242 lbs.	304 masses copper, weighing	1,120,129 lbs.
169 hhds. kiln copper, weighing	508,491 "	Total	2,816,862 lbs.

or $1408\frac{862}{2000}$ tons.

Average yield of mineral per fathom of ground broken	862 lbs.	Average yield of ingot copper per fathom of ground broken	615 lbs.

"The following is a detail of the expenses of stamp mill:

Cost of labor, stamping and washing	$6,771.47	Cost of lights, oil, tallow, shovels, etc	$222.67
Cost of 1351 cords of wood consumed	4,177.80	Cost of repairs, materials, fixtures, etc	492.09
Total			$11,665.03

"The total cost of washing and stamping per ton of rock was $82\frac{61}{100}$ cents.

"The total amount of rock stamped was 14,119 tons, yielding $4\frac{21}{100}$ per cent of mineral.

"The total running time of 24 heads was 108 days, stamping $5\frac{45}{100}$ tons of rock per head in 24 hours' running time, and $10\frac{45}{100}$ tons of rock per cord of wood consumed.

"The cost of breaking rock and tramming it to the stamp mill was $2097.48 or $14\frac{85}{100}$ cents per ton.

"The number men employed in the different departments of work, and their average wages per month, have been as follows:

Miners	195	Wages per. mo	$49.80
Surface men	35	" " "	40.48
Stampmen	12	" " "	47.02

"The present force embraces 210 miners, 36 surface men and engineers, 12 stamp men and 14 mechanics, making, with superintendent, mining captains and clerks, 279 men employed by the company.

"The production of mineral was $1408\frac{862}{2000}$ tons, and the quantity smelted was $1397\frac{1135}{2000}$ tons, yielding $71\frac{35}{100}$ per cent, or 1,995,609 pounds of ingot copper, which has realized an average price of $18\frac{30}{100}$ cents per pound."

Pewabic Copper Mining Co.—From the agent's report we take the following: "No. 6 shaft has been sunk from the 24th to the 25th level; the lode in it is large and showing some good stamp work. The 25th level has been opened north of the shaft 63 feet. The lode for the entire distance is from 12 to 15 feet in width and rich in barrel and stamp copper. A winze has been sunk from the 24th to the 25th level 40 feet north of the shaft in which the lode was found very rich in stamp mineral.

"The 24th level has been extended north $27\frac{1}{2}$ feet. The lode at this point is producing a large amount of good stamp and barrel copper. The 23d level has been extended north $24\frac{1}{2}$ feet, and is now very near the boundary line with the Franklin. The lode did not show copper of much value at this level, and the opening has been discontinued.

"We have done some little stoping at the 40-fathom level south of No. 4 shaft, and have hoisted a large amount of fair stamp work from the old stulls that have been lying there for many years. There still remains some good stamp rock at the 40 and 50-fathom levels that we shall hoist through this No. 4 shaft.

"The only opening done at the Concord mine for the past year is the extension of the 5th level north of No. 3 shaft 17 feet, and the sinking of a winze from the 3d level 35 feet to hole into a stope for ventilation.

"We are now working as we have been doing all of the past year, 12 miners, stoping in the backs of the 4th and 5th levels north of No. 3 shaft, from which we are getting a fair amount of stamp copper. That would doubtless give

a little profit with copper at a fair price. There is ground enough opened to last the present force about one year more.

"The result of the past year's business is a net profit of $7000, and the surplus assets now amount to about $15,000. This, although a small result, is reasonably satisfactory, considering the very bad year for mining interests."

Phœnix Copper Mining Co.—The receipts of this company during the year were as follows:

Shipped and smelted 1,357,703 lbs. mineral, yielding 73 34/100 per cent, or 1,002,493 lbs. fine copper, of which there have been sold 956,691 lbs., at the average price of 18 44/100 cents, amounting to	$176,444.65
Copper on hand, 45,802 lbs., at 17 cents	7,786.34
Mineral on hand, 117,250 lbs., at 10 cents	11,725.00
Received for 1100 oz. silver	1,267.03
Interest	234.72
	$197,457.74

The Treasurer reports the work done at the mine and the result for the year ending December 31st, 1877, as follows: Sinking on Phœnix vein, 513·7 feet; drifting on Phœnix vein, 1180·3 feet; stoping, 2414·23 fathoms; cross-cutting, 104 feet; sinking on Robbins Vein 94·9 feet; drifting on Robbins Vein, 288·8 feet; stoping Robbins Vein, 456·44 fathoms.

The Phœnix vein produced	591 120-2000 tons.
The Robbins vein produced	80 265-2000 "
Total	671 385-2000 "

The Franklin Copper Mine.—The openings made in this mine during the past year were as follows: Sunk in shafts, 313 feet; sunk in winzes, 666 feet; drifting 2103 feet. The stamp mill has worked very satisfactorily. The cost of stamping and washing a ton of rock is 71 cents. It should be borne in mind that our stamp rock is prepared for the mill by hand labor; consequently a large amount of it is very large, which adds at least 15 per cent to the stamping cost. If our rock was put through Blake's crushers, as all other mines are doing, our cost of stamping would doubtless be reduced to about 60 cents per ton. We have purchased a new frame and larger cylinders for two heads of stamps, from which we expect better results than anything yet obtained in this mill.

An increase of nearly 431,000 lbs. ingot copper was produced in 1877 over the year 1876, and also a reduction of the cost of manipulating the ore of 42 cents per ton, or equal to $52,000 in the year, was made, and also that an increase in product of ingot copper from 37¾ tons in January, 1875, 62 tons in January, 1876, 90¾ tons in January, 1877, to 106¼ tons in January, 1878, has been made, tells its own story, both as to mine and agent. Since the mine has last been in the control of the company about $150,000 have been spent in permanent improvements, and its condition at the present time, in all its departments, shows the way the property has been handled and money invested. Since the agent's report was written, January 1st, 1878, a very decided and gratfying improvement in the mine has taken place at No. 5 shaft, where a large and very rich shoot of copper-bearing ground has been struck, in some parts equal to the best of the old "Pewabic shoot," and a letter from the agent dated April 11th, 1878, states that it still holds good, and he has in sight a mass of about 4000 lbs., and plenty of barrel and rich stamp rock. The fact that the mine is more than paying its way under present depression in business is a criterion for what it can do in more prosperous times. The cost of mining and milling a ton of ore for 1877 was $3.03 per ton against $3.45 for 1876.

The Minnesota Copper Mine.—We condense the following from the Ontonagon *Miner*. The directors of this company make the following statement to the stockholders: "We have a large force of men working on tribute in the old mine, and there is still a large quantity of ground unwrought above the water level, sufficient to keep our force of forty tributors at work for many years. There is also a large amount of the burrows on the surface to turn over, so that if the present force of tributors can be retained we shall probably continue to realize as much mineral in the coming as in the past year.

"The work done on company's account has been the sinking a shaft below the adit or first level in the South Bluff vein, to the depth of 100 feet. It was hoped by so doing that the vein, which was very wide, would diminish in width with a corresponding increase of richness—a hope which has not been realized; for, although the vein has become one third less in width, the stamp-rock produced in sinking the shaft and in drifting down does not appear rich enough to warrant the expectation of its proving paying work. Our superintendent advises the sinking of the shaft deeper as the only chance of finding copper in this vein, experience showing that of the three veins opened on this bluff, at about this level, none have produced copper in paying quantities, and that if, as every thing indicates, there is mineral there, it must be sought at a greater depth than has hitherto been reached. We shall continue to expend a moderate sum yearly in these explorations, and hope one day to be able to report a more successful result.

The product of the mine, in mineral, for the year 1877, was 166,876 lbs., which was smelted and sold, yielding in ingots 143,148 lbs., or	$19,596.03
The estimated product of mineral for November and December, 1877, is 25,870 lbs., of which 6746 lbs. has been bought of the tributors, costing	470.90
	$20,066.93

The Ridge Copper Mine.—From the agent's report to this company, we condense the following: "The openings made in 1877 were as follows:

Drifting	439 5-12 feet.
Sinking winzes	119 11-12 feet.
Stoping	690 5-72 cubic fathoms.
Whole amount of ground broken	762 51-72 cubic fathoms.
Mass and barrel copper yield per cubic fathom	415 88-100 lbs.
Stamp copper, per cubic fathom	110 lbs.
Amount of rock hoisted	13,800 tons.
Amount of rock selected	2500 tons.
Proportion of stamp rock to rock mined	18 1-100 per cent.
Proportion of stamp rock to rock hoisted	18 11-100 per cent.

"The number of days worked by stamp mill on Ridge Mineral was 84.

"The amount of rock stamped was 2017 tons.

"The rock stamped yielded 2 8/100 per cent of mineral.

"The total cost of stamping, including repairs, and transportation of rock to mill, was $1.58 per ton.

EXPENSE AND WORKING FORCE.

Average monthly expense	$3,996.91
Average wages of miners on contract	41.20
Average number of miners	45
Average number of employés	78⅜

"The product of the mine for the past year has been:

Barrel copper	191,510 lbs.
Mass copper	125,685 lbs.
Stamp copper	83,890 lbs.
	401,085 lbs., or 200 1085-2000 tons,
which has realized, including copper on hand, and the mineral remaining at the mine at 75 per cent yield	$53,818.15
Received from sale of lot	200.00
Received from interest	149.94
Total receipts	$54,168.09

"The expenditures of the year are as follows: Mine expenses, $47,962.91; other expenses, as per Treasurer's balance sheet, $8773.01; total, $56,735.92. From which, deducting total receipts, $54,168.09, leaves a loss on the business of the year, $2567.83. The statement of assets and liabilities in last report showed a balance of $37,356.44; loss on estimate of product 1876, $413.20; loss on business of 1877, $2567.83; total, $2981.03; balance on hand January 1st, 1878, $34,375.41.

"The results of last year's work speak favorably for the condition of the mine, the production of copper being a full average of any of the past seven years, and but for its extremely low price would have netted a fair profit. The same general features continue to characterize the vein—irregularity and disappointments."

NEVADA.

The Comstock.—From the summary of the operations on the Comstock lode as published in the Gold Hill *News* for the week ending April 24th, we condense the following: "General T. H. Williams, President of the Savage mine, yesterday visited the lower levels and was well pleased with the development made on the 1600 level. He thinks the outlook for a paying body of ore very flattering. As soon as the crosscut on the 2000 level shall reach the vein, crosscutting will be commenced on the 1600. The indications on the 2000 continue good, the rock that is being penetrated being precisely the same as was passed through above before ore was found. When the 1900 level of the Gould & Curry is drained, four cross-cuts will be started east for the new ore body found in the Savage.

"The developments on the 1900 level of Ophir have proven beyond a doubt that the ore recently discovered is but the top of an ore body. In crosscuts Nos. 1 and 2 on that level the vein was solid and rich, but narrow. In crosscut No. 3 it was broken up and mixed with porphyry, while in crosscut No. 4 the vein was found to be much wider, and the quartz and porphyry considerably mixed, the ore having given out entirely. This shows conclusively that any improvement in the new find may be looked for to the northward instead of southward. The east drift on the 1800 level has reached far enough to intersect the ore vein, provided it extended upward to that level, without finding any ore indications whatever. The developments certainly all lead to the conclusion that when the 2000 and 2100 levels are opened, a valuable ore deposit will be found.

"The bullion yield of the California is fully up to the usual amount at this date in the month. The ore-producing sections of the mine show well, but the east drift from the bottom of the winze on the 1950 level is developing a somewhat singular feature. The bottom of the C. and C. shaft below the 1850 level is troubled with a perfect torrent of water, while the drift on the 1950 level, at a considerably greater depth, has advanced to within about 250 feet of the shaft in perfectly dry ground. This is very positive proof that there exists, somewhere in that 250 feet, some kind of a formation that entirely shuts off the water, after passing into which, in its downward course, the probabilities are that the C. and C. shaft will become perfectly dry. The Consolidated Virginia is slightly behind in its bullion production.

"The annual meeting of the Justice Mining Company will take place on the 6th of next month at San Francisco. It is rumored that the management will change hands, but of this we know nothing reliable. The mine is being moderately and economically worked at present. Alta is showing up well in good ore, but there is not likely to be much stir in either Justice or Alta until after the Justice election. Good developments are hopefully looked for in the 2400 level of the Imperial and Alpha, now just being opened from the winze sunk below the 2135 level. The important drift connection between the Yellow Jacket and Crown Point on the 2000 level, being fully completed and put in working order, the old Jacket works will be shut down on the first of the coming month, and the drift connection aforesaid will be utilized hereafter in prospecting the lower levels of the Jacket through the Crown Point. This is a matter of good economy, being a saving of several thousand dollars a month to the Yellow Jacket Company. The old hoisting works of the company are in excellent order, and can be utilized in prospecting and working the upper portions of the mine.

"Julia shows well in good work and prospects at the 2000 level, and the main south drift on that level has reached to within 40 feet of a point directly beneath the Ward shaft. The great combination shaft of the Chollar, Savage and Hale & Norcross has attained a depth of 2135 feet, and must soon exercise a very perceptible influence in the drainage of the Savage and Hale & Norcross mines. It will shortly become in fact the sump of that portion of the Comstock.

SUTRO TUNNEL.

"During the past week the header has continued in the same easy-working Comstock vein matter as at last report, composed of ledge porphyry, quartz and clay, with no water. The whole has to be carefully and substantially timbered, and important ore developments are to be expected at almost any time, for the tunnel has arrived nearly to its destination. Total length last evening, from mouth to face of header, 19,489 feet."

A RICH STRIKE AT AUSTIN.

AUSTIN, Nev., April 25th.—There is a well founded report of a strike of a large body of very rich ore in the Argenta mine, at Yankee Blade, three miles from Austin. The mine is being worked on a lease by individual miners, and if report speaks truly they have a big stake in sight.

PETROLEUM NOTES.

COMPARATIVE SYNOPSIS OF REPORTS FOR FEBRUARY AND MARCH, 1878 AND 1877.

42 GALLONS = 1 BARREL.		1878.		1877.	
		February, 28 days.	March, 31 days.	February, 28 days	March, 31 days.
Stock at the Wells	Bbls.	162,410	162,410	151,389	153,631
Production for the month	"	1,094,856	1,208,380	783,412	901,697
Daily average production	"	39,102	38,980	27,979	29,087
Iron tank stock	"	3,713,554	4,180,422	2,709,247	3,056,823
Total stock in the region	"	3,875,964	4,342,832	2,860,636	3,210,454
Shipments out of the region	"	774,234	741,512	484,904	913,919
Number of producing wells		8,725	8,848	6,441	6,666
Number of drilling wells		326	379	463	395
Number drilling wells completed		226	211	241	291
Aggregate daily production of new wells in bbls		2,898	2,900	2,002	3,344
Exports from New York	Gals.	12,025,633	9,342,656	9,955,850	16,614,330	
" " Boston	"	316,068	214,402	111,547	360,224
" " Philadelphia	"	2,752,864	2,375,996	5,045,287	296,443
" " Baltimore	"	1,733,937	2,600,742	2,489,344	2,128,105
" " Richmond	"	5,000	5,000	.....	.....
" " San Francisco	"	16,174	.....	44,950	104,990
Total exports	Gals.	16,849,676	14,538,796	17,646,978	19,507,092
Production in Pa.	Bbls.	1,094,856	1,208,380	783,412	901,697

February exports are official. Exports for March subject to correction.—*Stowell's Petroleum Reporter, April 13th*, 1878.

OLEAN, BRADFORD AND WARREN.—The branch line proposed to reach some new oil territory will leave the main line at Tarport, Pa., and run through the valleys of Kendall, Boyd and Knapp's Creeks to Eldred, N. Y., about 16 miles. It will be built by a separate company, but will be owned and controlled by the same parties as the main line.

COMPLETION OF THE BRADFORD AND SALAMANCA PIPE LINE.—The pipe line from the Bradford, Pa., oil region to the New York State line road at Sala-

manca is completed, and work on storage tanks and loading racks is being pushed vigorously. Two iron tanks, capacity 3000 barrels each, will soon be completed. The pipe is four inches in diameter, with a capacity of from 4000 to 7000 barrels per day.

AN OIL PIPE LINE IN WEST VIRGINIA.—An oil pipe line is to be laid in the counties of Wood, Pleasants and Ritchie, West Virginia. A certificate of incorporation was issued on April 25th. The capital stock is $10,000, with the privilege of increasing the same to $100,000. Shares $50 each. The charges for the transportation of petroleum shall not in any case exceed twenty cents for each barrel of 40 gallons for the first five miles, and not more than four cents a mile for any distance greater than five miles.

RUSSIAN OIL MARKETS CLOSED AGAINST US.—The Titusville *Herald* says: "It is claimed that the Czar of Russia has directed the imposition of a duty of $3.50 a barrel on all foreign refined petroleum. This is a protective tariff for the growing oil regions of Baku. The oil wells of that Russian district, on the Western shores of the Caspian Sea, vary from 40 to 200 barrels each. Two agents named Barry Bros., representing a wealthy oil firm in St. Petersburg, have recently purchased machinery in this country, and have also engaged Pennsylvania drillers to go out and develop the trans-Caucasian oil fields.

THE OIL AREA OF PENNSYLVANIA.—The area occupied by the oil region in Pennsylvania already equals that of the anthracite coal region and promises to be much greater. Although the whole country thus embraced is not yet oil producing, the developments are so constantly extending that the ultimate production can not now be estimated. The rush to new regions resembles that to new gold and silver mines in the West. Thus far no other district in the world begins to rival Pennsylvania in oil production.

AN old well put down at Brady's Bend in 1865 is still pumping.

IMPORTANT DECISIONS AGAINST AN OIL-CARRIER.—HARRISBURG, April 8th.—Judge Pearson this morning made decisions in two very important cases of the Commonwealth against the Columbia Conduit Company.

In the first case the company resisted the collection of tax on gross receipts on the ground that it was not a transportation company, and therefore not taxable. The Court held that a company that carried oil through pipes transported freight within the meaning of the tax law of 1877, and therefore was taxable the same as a railroad company.

In the second place, the company resisted the tax on its capital stock measured by dividends, claiming that inasmuch as they had sustained losses, the amount of losses should be deducted from the amount of dividends declared, and their tax in this way reduced. The Court held that where a dividend was declared it furnished the measure of the tax on the capital stock without regard to any loss the company had sustained.

MCKEESPORT OIL STRIKE.—The Osceola (Pa.) *Reveille* says: "New oil developments are gradually encroaching on the domain of the Allegheny mountain, the latest strike being on the Bayard farm, at Elrod station, Connellsville Railroad. The well is eighteen miles from Pittsburg, and three miles above McKeesport. This well was commenced eight years ago, to test the coal, and recently a new company took charge of it and commenced drilling for oil. Recently a strike was made at the depth of 1145 feet—another statement makes it 1160 feet—and the work is still progressing in expectation of a larger flow. In sinking this well, coal was found at a depth of 140 feet, there being, at that depth, an eight-foot seam of coal over 50 feet of fire clay. A correspondent of the Pittsburg *Dispatch* states that the conglomerate was struck at 1100 feet from the surface, according to which the oil must have been found immediately under the rock, and in the umbral shale. In the Osceola well, the umbral was struck at the depth of 367 feet, making a difference of 773 feet in favor of our well, when considering the third sand as the objective. The McKeesport oil evidently belongs to the upper oil measures of the Kanawha and Ohio, known to be 1250 feet above the Clarion oil stand, and about 2250 feet higher than the petroleum formations of Canada. To reach third sand, the McKeesport driller will have to sink his bit 2400 feet beneath the surface, and the same calculation would give us third sand in the Osceola well at 1627 feet. Making allowances for irregularity and increased thickness, 1700 feet ought to be the utmost limit of the sand, in the Beaver basin. The oil-bearing formations are equal in extent to the coal measures and their underlying rocks; but there are three horizons favorable to its accumulation, and oil is almost certain to be found in whichever one of them ranges from 500 to 1200 feet from the surface. Should we find the second formation (third sand) too low to be available as an oil producer, it will be necessary to test some point where the umbral shale under the conglomerate dips from 500 to 800, or even 1000 feet below the surface. Such conditions would place us on an equal footing with McKeesport, and give us an equally favorable showing for oil.

THE PLAN FOR DRILLING EMPLOYED IN THE BRADFORD DISTRICT.—We take the following from the *Commercial Bulletin*, of Boston:

"Good oil territory in the Bradford District can either be purchased or leased, the latter method being more generally adopted, as the rental is usually paid by a royalty amounting to one quarter of the oil production. The ground having been selected, a derrick is erected, and the boiler and engine are set up, care being taken to locate the fires at a sufficient distance from the well and its combustible surroundings to guard against danger of a conflagration.

"If the location is on high ground where the rock approaches to within twenty or thirty feet of the surface, an ordinary well is dug to the surface rock, and drilling is then begun. If the well is located in a valley or on bottom land, where an alluvial soil has been deposited, it will be necessary to sink a driving pipe previous to drilling. The driving pipe is eight inches in diameter, a quarter of an inch thick, and weighs twenty-eight pounds to the foot. It is cast in sections of from fifteen to twenty feet, threads being run at the ends to admit of screwing the sections together. The first section to be driven is provided with a steel shoe, which strengthens the pipe and guards against injury from collision with boulders.

"The pipe is driven down into the earth by a wooden maul weighing about 1600 pounds, which is worked similarly to a pile-driver. The surface-rock is usually reached in the Tuno Valley at a depth of two hundred and fifty feet, and the diameter of the hole at the bottom is diminished from eight to six inches. As the driving-pipe is gradually sunk, the soil within it is from time to time brought to the surface by means of a sand pump, water being first poured into the hole to convert the dry earth into liquid mud. After reaching the rock, a drill is introduced, and a hole drilled eight inches in diameter to a depth of three hundred and fifty feet, which will usually be far below fresh water courses. The hole is then six hundred feet deep. Into this is introduced an iron casing, 5⅝ inches in diameter, and one eighth of an inch thick, weighing ten pounds to the foot. The water is then exhausted from the casing by means of a steam pump, and the pulverized rock dries around the base of the casing, and forms a durable packing impervious to water. The rock is then drilled to the oil, the hole being 5⅝ inches in diameter.

"For a distance of one hundred and fifty feet, the drill passes through a stratum of slate and soapstone, and then reaches the first stratum of sand, which is usually from twenty feet to forty feet thick. Should this sand fail to yield sufficient oil, the drilling is continued through a second stratum of soft slate and soapstone to the second sand which is usually three hundred feet in thickness. Should the second fail, the drill is pushed down through the third stratum of slate and soapstone to the third sand. In the majority of cases in the Bradford District, each of the sands will yield oil, and over one half will be flowing wells, the oil being forced to the surface by the ascending gases which are directed into and confined within the casing-pipe by 'gas-packers.' No pools of oil are found in the Bradford District, the oil being held in the sand rock, and percolating into the well. A flowing well requires little or no attention, and a pumping well is run but two hours each morning and evening, care being taken not to entirely exhaust the oil in order to avoid incrustations.

"The Buffalo *Daily Express* says the average cost of the thirteen hundred wells now in operation in the Bradford District is four thousand dollars. There are two hundred and sixty new wells now being drilled, and ground has been broken for two hundred and forty more."

NOTES.

NOTE ON THE TELEPHONE—A. DEMOGET.—The author calculates that the sound transmitted by the telephone is 1,500,000 times weaker than that emitted by the speaker. He considers that as a machine it is still very imperfect.—*Le Monde.*

A NEW ELECTRIC BATTERY has been exhibited before the French Academy. The plates are of zinc and plumbago; the liquid, a solution in water of the substance known to druggists as unvitrified salt. It is claimed that the battery is more powerful than Bunsen's of the same dimensions, and that the constancy of the current is remarkable.—*Engineer.*

ARGENTINE DUTIES ON MACHINERY.—The Argentine Republic has adopted a new customs tariff, by which steam-engines of less than 10 horse-power, and non-galvanized iron, pay 15 per cent *ad valorem*; coal, other than gas coal, 10 per cent, and plows, steam-engines of more than 10 horse-power, and iron wire and metallic telegraph posts, 5 per cent; while locomotives, rails, and marine engines are admitted duty free.—*Engineering.*

FORMATION OF CARBONATE OF LEAD.—S. de Luca describes six bronze goats, with lead bases, found in Pompeii. They were evidently designed for weights. The lead has been mostly changed into an amorphous mass of white carbonate. On the smallest weight a portion has become translucent and partially crystalline. On the largest weight there are definite crystals of carbonate, with a brilliant luster. Their formation, in a period accurately known, is noteworthy.

THE SOUTH AFRICAN DIAMOND FIELDS continue as productive as ever, and several old claims have, within the past few months, changed hands at high prices, while new diggings are from time to time discovered. Some large stones have been found weighing 50 carats; others, weighing 145½ carats, 32 carats and 23 carats, the last being a perfect water. In Poor Man's Gully, again, a stone weighing 53 carats has been found. Machinery is being adopted in many of the fields, thus reducing the labor, and increasing the speed at which the ground can be worked.

VALUE OF AMMONIACAL LIQUOR OF GAS WORKS.—The Bradford Town Council at their meeting will, it is expected, accept the tender of Mr. Steuart, of Manchester, to pay for the next seven years the sum of £10,359 per annum for the ammoniacal liquor produced at the Bradford Gasworks. The average price realized during the last ten years has, it is stated, been about £800 per annum. The contractor, who has paid £800 a year during the past seven years, must have reaped a fortune out of the late contract, for he was one of the competitors for the new contract, and his tender on this occasion was about £8000 per annum.

ELECTRICAL EXPERIMENTS.—M. G. Plante has made some experiments upon distilled water with an electric current of high tension, by joining twenty secondary batteries, of forty couples each, producing a current about equivalent to 1200 Bunsen elements. He thus produces a number of beautiful luminous effects, constituting "a true electric kaleidoscope;" imitates the phenomena which result from the fall of liquid drops on a plain surface, and shows that, with a sufficient quantity and tension of electricity, we can obtain not only electrified liquid globules, but even the electric spark itself in globular form.

HEAT OF FLAME.—Chemists have for many years struggled with the problem of ascertaining the exact heat of flame. M. Rosetti, of Venice, has recently contributed some experiments to determine this point, which may prove nearer the truth than has hitherto been reached. He uses a thermo-electric apparatus. His estimate of the heat of a Bunsen burner is as follows: Exterior flame, 1350°, diminishing to 1200° at the dark central cone; interior of cone, top, 650°; bottom, 250°. These figures are of the centigrade thermometer, equivalent respectively to 2462°, 2192°, 1202° and 482° F. The method of obtaining the estimates can, however, give only proximate results.

A GREAT EXHIBITION IN 1879.—England has decided to have a great show next year. It will be an agricultural exhibition. The expense is estimated at $150,000. The Lord Mayor of London has appealed to the British public for the support of the projected enterprise; it is to be under the auspices of the Royal Agricultural Society. Agriculture is declining in Great Britain, and there is some hope that the exhibition may arrest its downward course. The number of cattle, and the acreage of wheat, and other crops are decreasing, and very nearly one half the population of the United Kingdom is now dependent for sustenance upon imported food.

A FLOUR-DUST EXPLOSION—THE BLOWING UP OF A GREAT FLOUR MILL IN MINNEAPOLIS, MINN.—A terrific explosion occurred on the 2d inst., attended with loss of life, and totally destroying the Washburn Mill, the largest on the American continent, and, with the exception of one in France, the largest and most complete flour mill in the world. It contained forty run of stone, and employed regularly from forty to sixty men. At this writing there is no certainty of the cause of the explosion, but mill men generally unite in the theory that it was occasioned by the igniting of the gas generated in some unknown manner by the middling purifiers. The wind at the time of the disaster was strong, causing all the surrounding buildings to ignite. The loss at 10 P.M. figured up more than $1,500,000.

TELEPHONE IMPROVEMENTS.—Many devices have been suggested to supply a call for the telephone. Of these the simplest and most easily managed is the temporary attachment of a tuning-fork at each end of the line, so that its sound in the sending instrument is reproduced at the receiving station. A further improvement makes the tuning-fork that finally receives the impulse ring a bell. In introducing the telephone into Spain, a contrivance has been arranged to isolate the person who is using the telephone from noise around him. It is very desirable to secure this object in the present condition of the instrument. The result is attained by what is called a "telephonic chamber," into which the operator enters; it is a small apartment, with glass windows for light, and doors fitted close by india-rubber pads. The device seems, from the description, to be too elaborate for popular use. Perhaps the same result could be attained by some kind of fixture which would merely envelope together the instrument and the head of the operator, such as a modification of the upper portion of a diving suit.

CAMELS IN ARIZONA.—In 1854-55 Congress appropriated $30,000 for the importation of camels to this country, and the store-ship Supply, under command of Lieutenant David D. Porter, was sent to the Mediterranean to obtain them in Africa and the Levant. Fine specimens, thirty-three in all, were selected; one died during the voyage to this country; the rest were landed in Texas. In recent years little has been heard of these animals. The *Arizona Miner* states that four camels, three old and one young, all quite tame, have been running at large near Mineral Park. One of these is so old that it is supposed to belong to the stock originally imported. The Hon. George P. Marsh wrote a small volume on the camel, showing its probable usefulness if introduced into this country, shortly after the animals were brought to Texas. Camels are now bred in that State, and the business is said to be profitable. They feed on cactus and sage-brush, and prefer such food to that which ordinary cattle require. A Texas camel-breeder says that any of them, if well broken for service, can travel 100 miles a day, and one in his herd has gone over 150 miles in twenty-four hours. They seem to be fully acclimated, and are represented as docile.

STATISTICS OF COAL PRODUCTION.

This is the only Report published that gives full and accurate returns of the production of our Anthracite mines.

Comparative statement for the week ending April 27, and years from January 1:

TONS OF 2240 LB.	1878.		1877.	
	Week.	Year.	Week.	Year.
Wyoming Region.				
D. & H. Canal Co..	23,452	651,777	53,543	641,755
D. L. & W. RR. Co.	22,128	529,264	37,213	623,635
Penn. Coal Co.....	17,822	168,345	19,013	299,397
L. V. RR. Co.....	9,339	204,321	17,779	306,652
P. & N. Y. RR. Co..	572	7,553	775	14,489
C. RR. of N. J.....	13,253	251,365	56,634	436,310
Penn. Canal Co....	3,212	32,448	12,388	35,651
	89,778	1,845,043	197,345	2,357,889
Lehigh Region.				
L. V. RR. Co.....	30,433	626,150	83,270	810,454
C. RR. of N. J.....	34,845	301,981	53,515	441,914
D. H. & W. B. RR..	161	3,810	52	5,625
	65,439	931,941	136,837	1,257,993
Schuylkill Region.				
P. & R. RR. Co	509	841,993	147,041	1,519,739
Shamokin & Lykens Val.....	21,931	153,926	21,211	146,760
	22,440	995,919	168,252	1,666,499
Sullivan Region.				
Sul. & Erie RR. Co.	595	9,913	181	3,874
Total.....	178,252	3,782,816	502,615	5,286,255
Increase.....	.....	.....	.....	.....
Decrease	324,363	1,503,439	.....	.....

The above table does not include the amount of coal consumed and sold at the mines, which is about five per cent of the whole production.

Receipts and shipments of coal at Chicago Ill., for the week ending April 27, and year from January 1.

	Week. Tons.	Year Tons.
Receipts.....	36,081	327,561
Shipments.....	2,223	58,892

Belvidere Delaware Railroad Report for week ending April 27:

	Week.	Year. 1878.	Year. 1877.
Coal for shipment at Coal Port (Trenton).....	.....	.....	3,886
Coal for shipment at South Amboy	6,160	154,136	188,589
Coal for distribution.....	2,790	52,604	56,173
Coal for Company's use.....	1,016	27,588	26,531

Perth Amboy Business:	Tons.
Received for the week..	8,961
Shipped for the week.....	15,588
On hand April 27.....	62,195

Receipts of Coal at Boston, for the week ending April 26 and years from January 1:

TONS OF 2240 LB.	1878.		1877.	
	Week.	Year.	Week.	Year.
From Alexandria and Georgetown.....	.....	1,965	600	1,898
Philadelphia.....	9,635	108,534	8,110	105,079
Baltimore.....	5,524	28,998	1,366	26,110
Other places.....	5,523	68,364	1,890	58,614
Great Britain	.....	13,372	.....	707
Nova Scotia.....	.....	665	.....	3,669
Total.....	20,682	231,898	11,966	196,077

The decrease of shipments of Cumberland Coal over the Cumberland Branch, and Cumberland and Pennsylvania Railroads amounts to 20,964 tons as compared with the corresponding period in 1877.

The Production of Bituminous Coal for the week ending April 27, was as follows:

Tons of 2,000 lb., unless otherwise designated.

	Week. Tons.	Year. Tons.
Cumberland Region, Md.		
Tons of 2,240 lb.....	34,368	306,914
Barclay Region, Pa.		
Barclay R. R., tons of 2,240 lbs.....	5,739	100,359
Broad Top Region, Pa.		
Huntingdon and Broad Top R. R.....	2,345	44,616
*East Broad Top.....	920	22,442
Clearfield Region, Pa.		
*Snow Shoe.....	405	10,060
*Tyrone and Clearfield.....	24,202	379,109
Allegheny Region, Pa.		
*Pennsylvania R. R	3,464	62,783
Pittsburgh Region, Pa.		
*West Penn R. R.....	4,133	69,269
*Southwest Penn. R. R.....	396	9,687
*Penn & Westmoreland gas coal, Pa. R. R.....	14,804	243,330
*Pennsylvania R. R.....	7,897	118,838

*For the week ending April 28.

The Production of Coke for the week ending April 28:

Tons of 2000 lbs.	Week.	Year.
West Penn R. R.....	1,593	24,435
Southwest Penn. R. R.....	17,035	251,599
Penn. & Westmoreland Region, Pa. R. R.	1,180	20,138
Pittsburg, Penn. R. R.....	2,015	27,556
Total...	21,823	323,728

COAL TRADE REVIEW.

NEW YORK, Friday Evening, May 3, 1878.

Anthracite.

The business in anthracite coal continues to be exceedingly quiet, with no indications of a revival much before August 1st. Prices are, under the circumstances, exceedingly firm, and the mining companies are hanging tenaciously to combination, there being no indications of an early rupture.

There can be no question, however, that this organization will be severely tried before a revival in trade sets in.

At a meeting of the Western Anthracite Coal Association, held in this city this week, the following prices per ton of 2000 lbs. alongside at Buffalo (40c. additional, f. o. b., for Western shipment) were adopted:

Grate.....	$3.65	Stove.....	$4.00
Egg.....	3.75	Chestnut.....	3.50

These prices are calculated to keep coals shipped from this port from reaching the Western markets, and are likely to prove a source of discord.

The Delaware, Lackawanna & Western Railroad Company's auction sale took place on Wednesday, May 1st. This was a delay of one week over the usual time. As these sales have become complete farces, it would be much better for the company and the trade as a whole, if they were abandoned entirely. The following quantities of coal were sold and average prices received, comparison being made with the previous sale:

Tons.	May 1.	M'ch 27.	Tons.	May 1.	M'ch 27.
6,000 St. Bt....	3.30½	3.25	20,000 Stove....	3.77	3.69
10,000 Broken..	3.30	3.22	7,000 Chestnut	3.15	3.18
7,000 Egg	3.45	3.40			
			Average....	3.49	3.47½

The above prices show an average advance of 2½c. per ton; but when we see men buying stove coal at auction at $3.77 per ton, when, by buying at circular price, commission off, they can secure it at $3.71, we do not hesitate to say that it is a most foolish effort to mislead the public as to the actual condition of the trade. To the dealers it is a well-known fact that this was a badly-manipulated sale.

The production last week was 178,252 tons as against 192,263 tons the previous week and 502,615 tons the corresponding week of last year. The total production from January 1st to April 27th was 3,782,816 tons, as compared with 5,286,255 tons for the like period of last year, showing a decrease this year of 1,503,439 tons.

The Philadelphia & Reading R. R. Co. has issued the following circulars:

CIRCULAR NO. 9—1878.

PHILADELPHIA, May 1, 1878.

Until further notice, Anthracite Coal shipped through the Chesapeake & Delaware Canal will be entitled to the same drawbacks as if shipped through the Capes of the Delaware. FRANKLIN B. GOWEN, President.

CIRCULAR NO. 10—1878.

PHILADELPHIA, May 1, 1878.

The privilege of filing season contracts for lump, seamer and broken coal, for manufacturers and consumers, under Circulars Nos. 5 and 6, is hereby renewed, and will remain open until May 25th, inclusive, provided the minimum rates of freight and tolls shall be ten cents higher than those named in said circulars.

FRANKLIN B. GOWEN, President.

Bituminous.

We learn of contracts during the week under review, of about 50,000 tons. The only feature to the business is an inclination on the part of Eastern manufacturers to re-adopt the use of this coal. Already purchases are being made, and as their stocks of anthracite coal become reduced, and under an advance in prices of that coal, considerable purchases of bituminous are likely to be made.

New York.

Wholesale Prices of Anthracite Coal for April Delivery f. o. b. at Tide Water Shipping Ports, per ton of 2,240 lbs.

	Lump.	Steamer.	Grate.	Egg.	Stove.	Chestnut.
WYOMING COAL.	$	$	$	$	$	$
Lackawana, at Weehawken	3 50	3 50	3 50	3 60	3 90	3 50
*Pittston, at Newburg.....	3 35	3 35	3 35	4 53	3 75	3 10
Wilkesbarre, at Pt. Johnson	3 50	3 50	3 50	3 60	3 90	3 25
L. Val. Coal Co., at Amboy.	.....	.....	3 50	3 60	3 90	3 25
Kingston at Hoboken.....	3 50	3 50	3 75	3 60	3 90	.....
Plymouth R. A., at Pt. John.	.....	.....	3 50	3 70	4 00	3 35
LEHIGH COAL.						
Old Company's, at Pt. John.	4 00	.....	3 75	3 75	3 90	3 25
Honey Brook L. at Pt. John	3 75	.....	3 75	3 75	3 90	3 25
L. V. Coal Co., at P. Amboy.	4 00	.....	3 75	3 75	3 90	3 25
Mount Pleasant, at Hobok'n	4 00	.....	3 75	3 75	3 90	3 25
Hazleton, at Hoboken....	4 00	.....	3 75	3 75	3 90	3 25
Cross Creek, at Port John.	4 00	.....	3 75	3 75	3 90	3 25
Sugar Loaf at Perth Amb'y	4 00	.....	3 75	3 75	3 90	3 25
SCHUYLKILL COAL *at Pt. Richmond, Phila.*						
Hard White Ash.	3 25	3 25	3 25	3 35	3 55	3 00
Free-burning W. Ash. ...,.	.....	.....	3 15	3 25	3 55	3 00
Schuylkill Red Ash.....	.....	.....	....	3 50	3 60	3 00
Lorberry.....	...,	.....	3 60	3 60	3 60	.....
Lykens Valley Vein.....	.....	.....	3 60	3 75	3 75	.....

*Fifty cents per ton additional for delivery in New York.

Wholesale Prices of Bituminous Coal.

DOMESTIC GAS COALS.

Per ton of 2240 lb.	At the Shipping Ports.	Alongside in New York.
Westmoreland and Pennsylvania—		
At Greenwich, Philadelphia	$4 70	$5 50
At S. Amboy.	5 00	5 50
Kanawha at Richmond	4 10	5 40
Red Bank Cannel, Pa., at Philadelphia..	8 00	8 50
Youghiogheny, Waverly Co., at Balt ...	4 50	5 65
Despard, West Va.....	4 50	6 00
Murphy Run, West Va., at Baltimore.. ..	4 50	5 85
Fairmount, West Va., " " . ..	4 40	5 70
Newburg Orrel. Md. " "	4 50	6 00
Cannelton Cannel, West Va		10 00
" Splint at Richmond.	6 00	7 00
" Gas Coal at Richmond	4 00	5 65
Peytona Cannel, W. Va., at Richmond...		10 00

MANUFACTURING AND STEAM COALS.

Cumberland at Georgetown and Alexandria	2 85@3 10	4 35@4 50
Cumberland, at Baltimore.....	3 10@2 25	4 35@4 50
Cl'rfi'd "Eureka" and "Franklin."		
At mines.....	0 75	....
At Baltimore.....	3 25	4 50
At Philadelphia.....	3 25	4 50

FOREIGN GAS COALS.

	Sterling.	Am. cur'ncy.
Newcastle, at Newcastle-on Tyne.....	8s.6d.@10s.6d.	$5 50@ $6 00
Liv. House Orrel, at Liv.....	25s.	13 00
Ince Hall Cannel "	35s.6d.	18 00
" Gas Cannel "	25s.6d.	10 00@ 10 50
Scotch Gas Cannel, at Glasgow, nominal.....	25s.	7 50
	Gold.	
Bl'k House, at Cow Bay, N.S.	$1 75	$4 50
Caledonia, at Pt. Caledonia.	1 50	4 25
Glace Bay at Glace Bay....	1 60	4 25
Lingan, at Lingan Bay.....	1 75	....
Intern'l Mines, at Sydney...	1 75	4 50
Pictou, Vale Mines, at Pictou	2 00	4 70

Retail Prices.

Per ton of 2,000 lb.

Anthracite.

	G. & Egg.	Stove	Chest'
Pittston coal delivered.....	$5 00	$5 00	$5 00
Lack. coal, delivered below 59th St.	4 50	4 50	4 50
Wilkes-Barre, delivered	4 50	4 75	4 50
Lehigh and Locust Mount. del'd	5 00	5 00	4 75

Bituminous.

Liv. House Orrel.....	$18 00	American Orrel.....	$11 00
Liv. House Cannel...	18 00	Red Bank Cannel.....	7 00
Am. "	11 00	Cumberland.....	9 00
Ca'n'l't'n Bl'k, or splint.	10 00		

Baltimore. April 29, 1878.

[Specially reported.]

Wholesale Prices per ton of 2240 lb. In cars at Depot N. C. R. R.

HARD WHITE ASH, FREE-BURNING WHITE ASH, SHAMOKIN, ETC.

Lump and Steamboat...	$3.95	Stove.....	$4.25
Broken.....	3.95	Chestnut.....	3.70
Egg	4.05		

LYKENS VALLEY RED ASH.

Broken.....	$4.15	Stove.....	$4.45
Egg.....	4.25	Chestnut.....	3.90

From wharf or yard to the trade, 50c. per ton additional. Afloat by cargo per canal barge, 15c. per ton less than in cars.

Boston, April 27, 1878.

The market continues very dull, and all quotations are somewhat nominal. About 1000 tons Lingan have been contracted for at the mine's price.

We quote Boston wholesale prices as follows:

Anthracite, broken	$4.35	Caledonia	$4.50
" egg....	4.40	Newcastle	4.25
" stove ..	4.70	Cannel, English	18.00
Franklin	5.75	" Library	15.00
Cumberland.....	4.50	" Buckeye	11.00
Clearfield.....	4.50	Penn.....	6.25
Westmoreland.....	6.25	Youghiogheny.....	6.25

—*Commercial Bulletin.*

Buffalo, N.Y. April 29, 1878.

[Specially reported by C. M. UNDERHILL.]

	To DEALERS.		To CONSUMERS.	
	On car or boat.	In yard, screened.	Delivered at yard.	Retail.
Grate	$4.20	$4.30	$5 45	
Egg	4.20	4.30	5.45	
Stove.....	4.45	4.55	5.70	
Chestnut.....	4.35	4.45	5.60	
Blossburg.....	3.85	4.35	5 00	

[Specially reported by LEE & LOOMIS.]

Per ton of 2,000 lb. delivered on cars.

	Lump.	Run of Mine.	Nut.	Slack.
Connellsville coke...	$4.75	.....	.....	.....
Brookfield Coal....	3.80	.....	.....	.....
Briar Hill.....	3.65	.....	2.85	.....
" "	3.25	.....	.....	.....
Youghiogheny.....	4.00	.....	.....	.....
Monterey.....	.....	.....	.....	.....
Catfish.....	3.10	2.70	.....	.....
Stoneboro	.....	.....	2.50	1.80
Sterling Cannel.....	4.50	.....	.....	.....
Cameron.....	.....	3.00	.....	.....
Hillside.....	.....	.....	.....	1.80

Cincinnati, O. April 29, 1878.

[Specially reported by the Consolidated Coal & Mining Co.]

Per bushel of 72 lbs.

	Retail delivered.	Wholesale afloat.
Youghiogheny.....	11c.	7½c.
Camden.....	9c.	5½c.
Cannel.....	17@18c.	13c.

Anthracite, delivered, $7@$8 per ton of 2,000 lbs.

Chicago, Ill. April 29, 1878.

[Specially reported by Messrs. RENO & LITTLE.]

Retail prices of coal delivered per ton of 2,000 lb.

Lackawanna Stove	$6 75	Erie and Brier Hill	$5 50
" Chestnut	6 75	Wilm'gton & Ill.	$3 50@4 00
" Grate	6 75	Blossburg	6 50
" Egg	6 50	Piedmont	7 50

Cleveland, O. April 29, 1878.

[Specially reported by F. A. BATES, Esq.]

Per ton of 2,000 lb. f.o.b. vessels.

WHOLESALE.

Brier Hill (Church Hill)	$3.25
" " No. 2 Grades	3 10@3.15
Monday Creek	2.70
Straitsville Lower Vein	2.70
Hocking Valley	2.70
Massillon (No. 2 grades 15 cents less)	2.70
Tuscarawas Valley	2.25
Columbiana	2.25
Nut coal, various grades	1.70@2.15
Screenings " "	1.25@1.5
Youghiogheny gas coals	3 6

RETAIL TRADE.

	1 to 10 tons	Tons. Upw'd
Brier Hill lump	$4 60	3 75
Massillon and Mineral Ridge lump	3 75	3 50
" " " " nut	3 50	3 25
Straitsville Lower Vein and Hocking lump	3 60	3 35
" " " " nut	3 40	3 15
Rich Hill lump	3 50	3 35
" " nut	3 25	3 00
Columbiana, lump	3 00	2 75
" nut	2 50	2 35
Lacka'a., Wilkes-Barre and Pittston egg and grate	6 10	5 85
Lackawanna, Wilkes-Barre and Pittston stove	6 25	6 00
" " " " chestnut	6 25	6 00

Lehigh $1 per ton higher.
All sales to be strictly cash with order or C.O.D.

Hamilton, Ont. April 29, 1878.

[Specially reported by H. BARNARD.]

Retail prices delivered per ton of 2,000 lb.

Scr. or Wilkes-B. Grate	$5 00	Lehigh Lump	$6 00
" " Egg	5 00	Brier Hill	5 50
" " Stove	5 25	Massillon	4 50
" " Nut	5 25	Smithing	5 50

Indianapolis, Ind. April 29, 1877.

[Specially reported by Messrs. COBB & BRANHAM.]

WHOLESALE BITUMINOUS.

On board cars, per ton of 2,000 lb.

White River	$2 65	Hocking Valley	4 25
Brazil Block	2 60	Raymond City	4 60
Highland, grate	2 25	Youghiogheny	4 60
Indiana Cannel	4 60	Blossburg (smithing)	6 10
Peytona	5 75	Piedmont "	6 10

Per car, 12 tons.

Block coal, nut	$18 00	Block Slack	$17 00
Highland, "	18 00		

RETAIL BITUMINOUS.

Delivered per bushel of 70 lb.

White River	13c.	Block Nut, steam use	8c.
Brazil Block	13	" Slack, "	7
Highland Grate	11	Virginia Cannel	25
Block Nut, domestic use	11	Youghiogheny	18
Highland Nut, " "	11	Blossburg	26
" " steam	8		

GAS COKE.

Per bushel, measure containing 2,888 cubic inches.

Retail, crushed	14c.	Wholesale	9c.
" lump	12		

ANTHRACITE.

Per ton of 2,000 lb.

Wholesale on Cars.		*Retail delivered.*	
Wilkes-Barre, all sizes	$5 75	Wilkes-Barre, all sizes	$7 50
Lackawanna, "	6 25	Lackawanna, "	7 00
Lehigh "	6 75	Lehigh, "	7 00

Louisville, Ky. April 29, 1878.

[Specially reported by Messrs. BYRNES & SPEED.]

Wholesale per bushel of 72 lb.

Pittsburg	8c.	Raymond City	7½c.
Ashland (Ky.)	7	Kentucky, on cars	8

Retail.

Pittsburg	$3 00	Anthracite, per ton	$7 50
Raymond City	2 75	City Made Coke, per bsh	7c.
Ashland (Ky.)	2 50	Soft Coke, per bushel	7c.
Pittsburg nut	2 50		

Milwaukee, Wis. April 29, 1878.

[Specially reported by Messrs. R. P. ELMORE & Co.]

Retail price per ton of 2,000 lb.

Anthracite, Egg, Chestnut and Stove			$6 50
Lehigh lump	$7 00	Connellsville coke on	
Brier Hill	5 25	RR. track	7 25
		Straitsville	4 80

Montreal. April 29, 1878.

[Specially reported by Messrs. ROBERT C. ADAMS & Co.]

Wholesale per 2,240 lb.

Scotch Steam	$4 75	Cape Breton Steam	$4 25
Pictou	4 50	Newcastle Smith's	6 00

Anthracite at retail, per 2,000 lb. delivered.

Stove	$6 50	Chestnut	$6 00
Egg	6 00		

St. Louis, Mo. April 30, 1878.

Reported by JAMES J. SYLVESTER, Secretary of the Anthracite Coal Association.]

Retail prices, delivered. Ton of 2,000 lb.

ANTHRACITE.

	Per ton.		Per ton.
Lackawanna	$8 00@8 50	Schuylkill	$8 00@8 50
Wilkes-Barre	8 00@8 50	Lehigh	9 00@9 50

BITUMINOUS.

Blossburg	$9 00	Big Muddy	$3 00
Pittsburg	4 50	Illinois Coals	2 50@3 00
Indiana Block	4 00	Connells. Coke	6 50

New Orleans, La. April 29, 1878.

[Specially reported by Messrs. C. A. MILTENBERGER & Co.]

PITTSBURG COAL.

At wholesale (by boat-load)	32½@35c. per bbl. of 180 lb.
To steamboats	50c. " "
" manufactories	50c. " "
" families	60c. " "
In hhds. (for shipment)	$6.00 per hhd. from 5 to 6 bbls.

ANTHRACITE COAL.

Per ton of 2,000 lb.

At wholesale	$7 00 to $8 00
To families, etc	9 00 to 10 00

ST. BERNARD (KY.) COAL.

To steamboats	40c. per bbl. of 180 lb.
" families	50c. " "
Virginia cannel to families	$1.00 " "

Philadelphia, Pa., May 2, 1878.

[Specially Reported.]

The trade is getting duller and duller. It is beyond recuperation by using such means as are now resorted to—mock auctions and articles in the newspapers trying to make the people believe that coal is advancing. There is only one cure for it; that is, for the Board of Control to do what they were intended to do—limit the supply to the demand. The year 1877 ended with a very full stock everywhere, the extreme low prices of last fall being a great inducement to dealers and consumers to stock liberally. Since that time there has been an extraordinarily mild winter, business in all branches much depressed, the strictest economy introduced everywhere, factories stopped, very numerous failures among large consumers, no increase in prices of bituminous coal corresponding to the increase in anthracite—all tending to decrease the demand, and the spring trade, which is mostly made up of the gaps created by the winter, is a failure. Confidence in the combination by buyers can only be obtained by the managers of it undertaking to accomplish without hesitation what they profess to do. In four months a total curtailment of one million and a quarter of tons, compared to a year of unusual full work, is all that has been accomplished, and the causes we have enumerated above have contributed to a much larger decrease in the consumption. The consequence is that we are to-day less advanced than we were at the beginning. It is not a pleasant outlook, but nevertheless it is a fact, and it has to be faced, and the sooner it is the better for all concerned. Coal matters have been so publicly discussed for years past that the time is gone for scaring people with threats of big prices. The dealers and consumers understand it thoroughly and can not be humbugged. They know that a few years ago, after a strike, which lasted nearly six months, and included the Schuylkill, Lehigh and part of the Wilkes-Barre Region, the market was overstocked after a few weeks of full work, and the curtailment by that strike was far more severe than this year and the consumption much larger. When dealers and consumers understand that no excess in production will take place and feel secure in buying at present rates there will be a favorable turn—not before. Threats of big prices, with a surplus forced on the market all the time, and circular rates the exception, accomplish nothing. The regulation of the production ought to be in the hands of parties governed by a full realization of the true condition of the market, instead of by those whose pressing necessities blunt their judgment.

Vessels are scarce and the tendency of freights is upward. The receipts at tide-water are very heavy, owing to the dullness of the local trade.

Pittston, Pa. April 29, 1878.

Pennsylvania Coal Company's Coal in Yard.

Retail per ton of 2,000 lb.

Lump, Egg, and Stove	$2 25
Chestnut	2 00
Pea	1 00

Delivered, 50 cents per ton additional.

Richmond, Va. April 29, 1878.

[Specially reported by S. H. HAWES, Dealer in Coal.]

Per ton of 2,240 lb. f.o.b.

Kanawha Cannel	$9 00	New River Bituminous	$3 70
Coalburg Splint	5 70	Clover Hill Coal	3 00
Lewiston	5 70	Norwood Gas and	
Kanawha Gas Coal	4 90	Steam Coal	2 70

San Francisco, April 25, 1878.

COAL.—Imports from January 1st to April 1st, 1878:

	Tons.		Tons.
Anthracite	3,029	Vancouver Island	34,684
Australian	9,912	Seattle	16,211
Coos Bay	5,995	English	13,836
Cumberland	349	Mt. Diablo	23,040
Bellingham Bay	1,975		

The market for all descriptions is dull and inactive. The cargo of 1778 tons Sidney, per Br. ship Langdale, was for the Rolling Mills. Imports for the week embrace the following: from British Columbia bark Revere, 1220 tons Wellington; Marmion, 1350 tons Nanaimo; the Montana, from Seattle, brought 1050 tons; the Caprera, from Hamburg, had 200 tons; the Gussie Telfair, from Coos Bay, 300 tons. The receipts of California steam from the Mt. Diablo mines are of every day continuance, averaging some 8000 tons per month. Of this, the Antioch *Ledger* notes the fact that the Empire Company is now shipping 1000 tons of coal per week, and says that it has now been fairly introduced, and been pronounced as being fully equal to the best Diablo coal. Many of the river steamers coal daily at the wharf, and some fifty or sixty tons are daily sold for private family use in San Francisco. The quality of coal is reported to be continually growing better as a greater depth is reached in the mine. This latter is sold at retail for $6, delivered to families; the Seattle at $10, delivered all over the city to families. The wholesale cargo price of Coast coals may be quoted at $5.50@$6.50. The last sale of Australian spot, ex ship, was $7.25. Australian, Scotch and English, to arrive, may be quoted at $6.50@$7. The City of Panama brings 780 tons Nanaimo.—*Commercial Herald.*

Sandusky, Ohio. April 29, 1878.

[Specially reported by C. E. BLACK, Agent Con. Coal and Mining Company.]

We quote coal on cars at Sandusky, as follows:

Per ton of 2,000 lb.

ANTHRACITE.

	Grate.	Egg.	Stove.	Chest
Lehigh	$6 50	$6 50	$6 50	$6 50
Wilkes-Barre	5 75	5 75	5 75	5 75
Lackawanna	5 75	5 75	5 75	5 75

BITUMINOUS.

Massillon	$3 00	Straitsville	$2 70
Del Carbo	2 75	Shawnee	2 70
Hocking Valley	2 70	Blossburg	4 75

Prices retailed delivered 50c.@75c. above car prices.

Freights.

Per ton of 2,240 lb.

Representing the latest actual charters to May 2, 1878.

Ports.	From Philadelphia.	From Baltimore.	From Elizabethport, Port Johnson, South Amboy, Hoboken and Weehawken.
Augusta, Me	1.14†@1.25		
Albany			
Alexandria, Va			
Brooklyn, N. Y			
Bangor, Me		$1.40	
Bath, Me		1.25	90
Baltimore			
Boston, Mass	1.25	1.25@1.30	80@90
Bridgeport, Conn.		1.30	50
Bristol, R. I.			80
Beverly, Mass			80@90
Cambridge, Mass.			80@90
Cambr'g p't, Mass			
Danversport	1.20†		
Fredericksbrg, Va			
Fall River		1.30	70
Gardner, Me	1.10		
Gloucester			
Georgetown, D.C.	55		
Hartford, Conn.			
Hoboken			35
Hudson, N. Y.			
Jersey City			35
Lynn, Mass.			
Middletown	1.30†		90
Nantucket, Mass.			90
Newark, N. J.			
New Bedford		1.30	80
Newburyport		1.40	1.00
New Haven	1.05	1.30	50
New London		1.30	50
Newport			70
New York	90@95	1.25	35
New Orleans, La.			
Norfolk, Va.			
Norwich			65
Norwalk, Conn			55
Pawtucket, R. I.			
Philadelphia			
Portland		1.25	80
Portsmouth, N.H.	1.20	1.40	90
Providence		1.30	70
Rockport			
Richmond, Va	50@55		
Saco	1.30		
Salem, Mass.		1.30	06@08
Savannah, Ga			
Somerset, Mass.			75
Staten Island	96		
S'th Boston, Mass	1.10		
Trenton, N. J.			
Troy, N. Y.			
Wareham			
Washington			
Wilmington, N.C.			
Wilmington, Del.			

* And discharging and towing. † And discharging. ‡ And towing. § 3c. per bridge extra.

Rates of Freight on Anthracite Coal to Tide-Water Ports.

SCHUYLKILL COALS. Per ton of 2,240 lb.	From * Pine Grove.	From * Tamaqua.	From * Schuylkill Haven.	From Port Clinton.
To *Port Richmond*, via P. & R. R. R., Main Line, for shipment	1.80	1.75	1.60	.....
To *Harrisburg*, via Lebanon Valley Branch	1.20	1.70	1.55	.....
To *Allentown*, via East Pennsylvania Branch	1.47	1.42	1.27	.....
To *Lancaster*, and Points on Lancaster Branch, via R. & C. R. R.	1.59	1.54	1.39	.....
To *Dauphin*, via Schuylkill and Susquehanna Branch	1.03	1.42	1.27	.....
To *Slatedale Junction*, via Berks and Lehigh ranch	1.62	1.57	1.42	.....
To *Lebanon*, via Lebanon and Tremont Branch	94	.....	.....	.....
To *Philadelphia*, via Schuylkill Canal, including freight and charges for the use of cars and barges, and for tolls (exclusive of cost of loading, trimming and unloading)	.....	.....	1.50	1.40
To *New York*, via Schuylkill Canal, including freight and charges for the use of cars and barges and tolls on the Schuylkill Canal and Delaware & Raritan Canal and the towing between Fairmount and Bordentown and between New Brunswick and New York (exclusive of cost of loading, trimming and unloading)	.....	.....	2.40	2.30

From *Tamanend*† to *Catawissa*, *McAuley*, *Mainville*, *Rupert* and *Danville*, via Catawissa & Williamsport Branch Railroad 100

From *Tamanend*† to *Williamsport*, *Hall's* and *Montoursville*, via Catawissa & Williamsport Branch Railroad 135

A deduction of 15 per cent. will be made from the above

rates upon all coal consigned for actual consumption at iron works upon the line of the railroad, any of its branches or the Schuylkill Canal.

An additional charge of 25 cents per ton will be made on Chestnut and Pea coal to whatever point consigned. If the shipper signs a release of all demands arising from a deficiency of weight at the place of destination, and agrees to indemnify the company from all claims by reason thereof, such additional charge will not be made. Releases, properly prepared, will be furnished, and can be signed at the coal offices of the company, at St. Clair, Palo Alto, Schuylkill Haven, Mount Carbon, Pine Grove and Tamaqua.

For consumption at local points in coal region, including Shamokin, Herndon, Schuylkill Haven, Pine Grove and Tamaqua, three cents per ton per mile, and two cents per ton additional; and a charge for *car service* of fifteen cents per ton to individuals, and five cents per ton to manufacturers, when in Philadelphia & Reading Railroad cars, provided no charge, including freight tolls and car service, shall be less than twenty-five cents per ton.

Sent westward via Northern Central Railway (in N. C. R, W. Co.'s cars), four and two-tenths cents per ton per mile, to Locust Gap, Shamokin, or Herndon, provided no charge will be made less than 15 cents per ton.

One mile extra will be added for coal passing through the East Mahanoy Tunnel.

Fractions of distances and rates will always be stated in *tenths*.

No charge will be made for weighing or making returns of coal shipped, and the latter will be furnished free of charge upon application to the weighmaster; if these returns are to be sent by mail, envelopes properly stamped and addressed, must be furnished to the weighmasters.

All coal will be charged the rates (both lateral and main line) current on the day it is weighed; it will also be waybilled on the same day.

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*For shipment via Main Road or Schuylkill Canal, one and one-half cents per ton per mile, and two cents per ton additional to Schuylkill Haven, Pine Grove, Tamaqua or Port Clinton, for Canal, as the case may be. Provided no charge shall be less that 15 cents, or greater than 45 cents per ton.

†Coal sent to points on the Catawissa & Williamsport branch will be charged one and one-half cents per ton per mile, and two cents per ton additional to Tamanend.

Circulars relating to the above freights will be found in the "Coal Trade Review" in this JOURNAL *of March* 30.

Lake Freights on Coal and Iron Ore.

Representing actual charters up to the 1st inst.

From	To	Rate per ton.	From	To	Rate per ton.
Cleveland.	Chicago...	35	Blk. River	Brockville‡	1.25
"	Buffalo....	40	"	Blk. Rock.	45
"	Toronto*..	1.00	"	Chicago...	40
"	Milwaukee	35 to 40	Buffalo...	"	25
"	Detour..	40	"	Detroit..	25
"	Sh'boyg'n.	45	"	Milwaukee	25
Marquette	Cleveland†	1.40	Ashtabula	"	40
"	Ashtab'la†	1.40	"	Chicago...	35
Black Riv.	Buffalo....	35	Buffalo....	Detroit..	25
Fairport..	Milwaukee	35			

*Gold. †Iron ore. ‡Six trips coal and six trips ore. Pig iron.

CLEVELAND, Ohio, April 30th.—Coal freights to Chicago are steady at 35c., with a limited supply, and a good many vessels offering.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, May 3, 1878.

American Pig.—The transactions have been confined to small lots with a tendency to weakening prices. That there should be an inclination to lower prices, despite coal combinations or other causes, is not strange, when we consider the small amount of important sales that have been made during the past six months. Some of the Lehigh companies continue to be fairly firm in their prices, while others are decidedly weak, and North River brands continue, as they have been for a long time, considerably under what is known as the market price. We quote No. 1 foundry at $17.50@$18.50; No. 2 foundry, $16.50@$17.50, and forge, $16@$17.

Scotch Pig.—A business aggregating two or three hundred tons is reported. We quote Eglinton at $23; Coltness, $25; and Glengarnock, $24.

Rails.—We learn of no business, although there is a liberal amount of inquiry. It is said, that owing to the inability to place orders for steel rails to be delivered promptly, there is a better demand in a small way for iron rails. We quote steel at mill at $43@$46, and iron at $32@$36.

Old Rails.—We are reported a sale of 1500 tons on private terms, and quote nominally at $18.

Wrought Scrap.—We are not informed of any business and quote nominally at $21 from yard.

Buffalo. April 29, 1878.

[Specially reported by Messrs. PALEN & BURNS.]

We quote to-day as follows: Pig iron (reliable brands) delivered on cars here:

No. 1 Foundry	$19.50
No. 2 "	18.50
B 1 "	19.00
Silver Gray	17.00
American Scotch A 1	19.50
" " B 1	19.00
" " No. 2	18.50

Cincinnati, O., April 30, 1878.

[Specially reported by Messrs. TRAHER & AUBERY, Commission Merchants for the sale of pig iron, blooms, ore, etc.]

Below please find closing quotations of our pig iron market, viz.:

CHARCOAL.

H'n'g Rock	No. 1 Foundry & B 1	$21 00@$22 50—4 mos.
"	No. 2 "	20 00@ 21 00—4 mos.
"	Soft Silver Gray	19 00@ 20 00—4 mos.
"	Mill	18 00@ 19 00—4 mos.
Tennessee	No. 1 Foundry	21 00@ —4 mos.
"	No. 2 "	20 00@ —4 mos.
"	Mill	18 00@ 19 00—4 mos.

STONE COAL.

Ohio	No. 1 Foundry	$19 00@ —4 mos.
"	No. 2 "	18 00@ —4 mos.
"	Nos. 3 and 4 "	17 00@ 16 00—4 mos.
"	Mill	17 00@ —4 mos.

COKE.

Ohio & W. Va.	No. 1 Foundry	$20 00@ —4 mos.
" "	No. 2 "	19 00@ —4 mos.
" "	Mill	18 00@ 17 00—4 mos.

CAR-WHEEL.

H'n'g R., C. B	Hecla, Vesuvius, Etna, Jefferson.	$36 00@ —4 mos.
Maryland,	Cedar Point	37 00@ —4 mos.
Missouri,	Maramec	30 00@ —4 mos.
Alabama,	Woodstock	32 00@ —4 mos.

BLOOMS.

Charcoal	$45 00@$50 00—cash.

SCRAP IRON.

Cast	40c. @ 45c.—cash.
Wrought	62½c.@ $1.00—cash

Columbus, Ohio. April 29, 1878.

[Specially reported by Messrs. KING, GILBERT & WARNER, Dealers in Pig Iron and Ores.]

There has been but a moderate demand for pig iron during the past week. Prices remain unchanged. We quote as follows:

FOUNDRY IRONS.

No. 1 Hanging Rock Charcoal	$23 50@$24 00
No. 2 " " "	22 00@ 22 50
No. 1 Hocking Valley soft and strong from pure limestone ores	20 00@ 20 50
No. 2 Hocking Valley soft and strong from pure limestone ores	19 00@ 19 50
No. 1 American Scotch	19 00@ 19 50
No. 1 Moxahala	20 00@ 20 50
No. 2 "	19 00@ 19 50
No. 1 Shawnee	19 50@ 20 00
No. 1 Eliza (Jackson County)	19 00@ 19 50
Silver Gray	17 50@ 18 00

MILL IRONS.

Gray neutral	18 00@ 18 50
Mottled and white neutral	17 00@ 17 50
Gray cold short	17 00@ 17 50
Mottled and white cold short	16 00@ 16 50

Chattanooga, Tenn. April 29, 1878.

[Specially reported by J. F. JAMES, Dealer in Iron & Metals.]

There has been no change in the condition of our market since our last report. Demand remains limited, and prices unchanged. A couple of furnaces below contemplate blowing out as soon as present stock of ores and fuel are consumed. The manufacture of steel South has proved a success, both as regards cost of production and quality. I had the pleasure of witnessing, on Thursday last, at the Tennessee Steel & Iron Co.'s mill here, the first bar of steel ever rolled South. I quote as before:

Tenn., Ala. & Ga. Charcoal, No. 1 Foundry	$18 00@$19 00
Tenn., Ala. & Ga. Charcoal, No. 2 Foundry	17 00@ 18 00
Tenn., Ala. & Ga. Charcoal, Gray Forge	15 00@ 16 00
Tenn., Ala. & Ga. Coke, No. 1 Foundry	19 00@ 20 00
Tenn., Ala. & Ga. Coke, No. 2 Foundry	17 00@ 18 00
Tenn., Ala. & Ga. Coke, Gray Forge	15 00@ 16 00
Tenn., Ala. & Ga. cld B. (car-wheel)	20 00@ 28 00
Charcoal or Coke, white and mottled	14 00@ 15 00

Old rails	$18 00@$19 00	Wr'ght scrap, No. 2	$12 00
Old car wh'ls.	16 00@ 17 00	Cast scrap	10 00
Wr'ght scrap, No. 1	17 00	Muck bar	32 00@ 33 00

Iron Ores.

Red Hematite (about 55 per cent. metallic iron) f. o. c. at mines	$1 25
Brown Hematite (about 55 per cent. metallic iron)	1 75

Cleveland, O. April 30, 1878.

[Specially reported by Messrs. C. E. BINGHAM & Co.]

Per gross ton, on four months' time. Subject to change without notice.

FOUNDRY IRON.

No. 1 L. S. Charcoal	$24 00	Am. S., No. 1, Ch. Val.	$22 00
No. 2 " "	24 00	" " B—1, " "	21 00
No. 1 Anthracite	21 00	" " No. 2 " "	19 00
No. 2 "	19 00	No. 1, Massillon	22 00
No. 1 Bituminous	21 00	B—1, "	21 00
No. 2 "	19 00	No. 2, "	20 00

CAR-WHEEL AND MALLEABLE IRON.

No. 3, L. S. Charcoal	$25 00	Nos. 5 & 6, L. S. Char.	$25 00
No. 4, " "	25 00		

BESSEMER IRON.

Nos. 1 & 2, L. S. Char.	$24 00

FORGE IRON.

No. 1, Gray	$18 00	White and Mottled	$17 00

Louisville, Ky. April 30, 1878.

[Specially reported by Messrs. GEORGE H. HULL & Co.]

The demand for foundry and mill grades has largely increased during the past week, but with no effect whatever upon prices. The usual time, four months, is allowed on the quotations below:

FOUNDRY IRONS.

	No. 1.	No. 2.
Hanging Rock Charcoal	$21 50@$22 50	$18 50@$19 00
Southern Charcoal	18 50@ 19 00	17 50@ 18 00
H'n'g Rock, Stc'l & Coke	19 50@ 21 50	18 00@ 19 00
Southern Stonecoal & Coke	18 50@ 19 00	17 50@ 18 00

"Amer. Scotch"	$19@$20	Silver Gray	$16@$17

MILL IRONS.

No. 1 Charcoal, Cold-short & Neutral	$17 00@$17
No. 1 Stc'l & Coke, Cold-short & Neutral	16 50@ 17
No. 2 Stc'l & Coke, Cold-short & Neutral	13 00@ 13
No. 1 Missouri and Indiana, Red-short	20 00@ 21
White & Mottled, Cold-short & Neutral	14 00@ 16 00

CAR-WHEEL AND MALLEABLE IRONS.

Hanging Rock, Cold Blast	$34 00@$36 00
Alabama and Georgia, Cold Blast	25 00@ 32 00
Kentucky, Cold Blast	25 00@ 32 00

Milwaukee, Wis. April 29, 1878.

[Specially reported by Messrs. R. P. ELMORE & Co.]

CHARCOAL IRON.

No. 1 Lake Superior per gross ton	$23 00—4 mos.
" 2 " " " "	22 00—4 mos.

ANTHRACITE IRON.

No. 1 Anthracite per gross ton	24 00—4 mos.
" 2 " " "	23 00—4 mos.

STONE COAL AND COKE.

Warner's Am Sc'th (Bk. Band, per ton	$25 00@ —4 mos.
Soft Silvery per ton	22 00@23 00—4 mos.
Ohio Stone Coal	22 00@23 00—4 mos.

CAR WHEEL.

Lake Superior ores per ton	$25 00@27 00—4 mos

Philadelphia, Pa. May 2, 1878.

[Specially reported by JUSTICE COX, JR., & Co., Iron Merchants, 333 Walnut street, Philadelphia.]

Pig Iron.—The month just closed has been one of the dullest and most unsatisfactory with most iron men since the panic of 1873. It is hoped, as May comes in, we may have more business. There are several things in the market, should they come to anything, which will make quite a demand for almost all kinds of manufactured iron, and this will, of course, help the pig-iron men. We can quote: Pig iron No. 1, $18 to $20; No. 2, $16 to $18; Gray Forge, $16 to $18, all Philadelphia.

Manufactured Iron.—The demand for bars continues as for some weeks—only in small lots for immediate use. We do not go lower, as now producers are selling at a loss, and if some mills do not shut down, bankruptcy will be the result. In plate and tank little is doing. We quote: Bars, 1 65-100 to 1 9-100, for common; 2 to 2 1-10c. ₱ lb., best refined. Plate and tank, 2⅞ to 6c. ₱ lb., as to quality. Skelp, 2 to 2 1-10c. ₱ lb.

Rails.—The demand for steel rails continues brisk, with all they can do for at least six months. In iron, only small orders are coming on the market. We quote: Steel, $41 to $43; iron, $32 to $35, all at mills.

Old Rails.—The demand is not so good as last week, some lots being pressed on the market. We quote: $19.50 to $20.50, and September sales of 300 tons at $19.50, Philadelphia.

Muck Bars are quite dull, with sales at $30 to $34, as to quality, Philadelphia.

Scrap.—Wrought is quoted $20 to $24; cast, $12 to $16.

Pittsburg, Pa. April 30, 1878.

[Specially reported by A. H. CHILDS.]

The long-continued dullness and pressure to sell has resulted, as usual, in a decline of prices, without any perceptible increase in volume of sales. The mills are ready enough to accept any concessions offered, but are, for the most part, adhering closely to their policy of purchasing only what is required for immediate use. Quotations are:

	4 mos.		4 mos.
No. 1 F'dry	$20.00@$22.00	M, & White	$15.00@$16.00
No. 2 "	18.00@ 19.50	Hot Blast Ch.	20.00@ 25.00
Gray Forge	17.00@ 19.00	Cold Blast W.	@ 35.00

Richmond, Va. April 30, 1878.

[Specially reported by ASA SNYDER, Esq.]

I report a quiet market for the past week. The few transactions in iron now made are on the basis of the following quotations:

Amer. Scotch	Pig Iron		$23.00@$24.00
"	"	No. 2	18.50@ 19.50
Anthracite	"	No. 1	19.50@ 20.50
"	"	No. 3	17.50@ 18.50
"	"	Mottled	15.00@ 16.00
Coke	"	No. 1	21.00@ .....
"	"	No. 2	20.00@ .....
Va. Cold Blast Charcoal	Pig Iron,	cold short	20.00@ 24.00
" "	"	neutral	28.00@ 29.00
" Warm	"	cold short	19.00@ 22.00
" "	"	red short	
		silver grey	18.00@ 19.00
Old Rails			16.00@ 17.00
Wrought scrap No. 1			18.00@ 19.00
Cast scrap—Machinery			17.00@ .....
Richmond Refined Bar Iron			2.00@ 2.25
Horse-shoes			4.50@ 4.75
Mule-shoes			5.75@ .....
Old Dominion nails (standard size)			2.60 keg.

St. Louis, Mo. April 92, 1878.

[Specially reported by Messrs. SPOONER & COLLINS, Commission Agents for all kinds of Iron.]

COLD BLAST CHARCOAL—ALL NUMBERS.

Hanging Rock	$25@$34	Assorted Bar Iron	$2, rates.
Tennessee	26@ 30	No. 1 Wr'ght Scarp,	80c. cwt.
Kentucky	25@ 30	Heavy cast	" 65c. "
Missouri	26@ 28	Light	" " 55c. "
Georgia	24@ 26	Old rails	$20 00@$20 50
Alabama	24@ 26	Old carwheels	17 00@ 18 00

	No. 1.	No. 2.	Mill.	White and Mottl'd
Missouri stone coal	$22 00	$22 00	$19 00	$16 00
" charcoal	20 00	19 00	18 50	17 00
Tennessee charcoal	22 00	21 00	19 00	17 00
Tenn. coke very soft and strong	21 00	20 00	19 00	17 50
Hanging Rock charcoal	25 00	24 00	.....	.....
" " cold short	22 00	21 00	.....	.....
	ExNo.1	No. 1.	BNo.1.	No. 2.
Alice Hanging Rock coke	$24 00	$23 00	$22 50	$21055
Quinnimount, W.Va., coke	24 00	22 50	21 50	20 0

METALS.

NEW YORK, Friday Evening, May 3, 1878.

Outside of copper there has been no business of importance done, and even this article sympathizes with the others as respects weakness in price. We are now approaching the season that for several years past has been a quiet one, and but little improvement is

pected before the middle of August or 1st of September.

RECEIPTS OF METALS AT NEW YORK FOR THE FOUR WEEKS ENDING MAY 2, AND YEAR FROM JANUARY 1, 1878.

	Apr. 11.	Apr.18	Apr. 25.	May 2	Yr.from Jan. 1.
Copper, bbls	112	270	75	80	3,944
Copper, boxes...	.....	113	.....	.....	113
Copper, cakes...	8	.....	160	.....	3,271
Lead, pigs.....	10,300	15,364	11,233	2,524	132,342
Spelter, pieces...	3,288	912	1,022	.....	18,436
Quicksil'r, flasks.	.....	210	.....	.....	310

Gold Coin.—During the whole week under review the price of gold has been 100⅝.

Bullion.—The silver market abroad is weaker and lower than for a long time past, under a cessation of orders for India, and of all purchases for account of the United States Government. Its future depends largely upon whether the German Government will continue its sales. If it should, the market would go lower. The quotations are: London, 53⅝d.; New York, 117⅝. Gold bars are quoted at ⅛ per cent premium.

DATE.	London	N. Y.	DATE.	London	N. Y.
	Pence.	Cents.		Pence.	Cents.
Apr. 27 ...	53⅞	118	May 1.	53⅞	118
Apr. 29....	53⅞	118	May 2.	53¾	117¾
Apr. 30....	53⅞	118	May 3.	53⅝	117⅝

BULLION SHIPMENTS.

April 22.	Hussey,	Nevada.....	5,500.00
" 18.	Justice,	"	8,700.00
" 22.	Grand Prize,	"	21,000.00
" 20.	California,	"	135,203.35
" 20.	Con. Virginia,	"	121,924.41
" 23.	Manhattan,	"	31,769.00
" 20.	Northern Belle,	"	7,496.31
" 16.	Standard,	California.....	18,506.71
" 23.	Endowment,	"	3,303.97
" 12.	Miami Mill,	Arizona.....	4,600.00
" 23.	McCrackin,	"	28,692.31
" 19.	Christy,	Utah.....	5,007.00
" 23.	Old Telegraph,	"	1,500.00
" 24.	Crismon Mammoth,	"	2,600.00

MARCH BULLION PRODUCT.

Following is a statement of the bullion product for March of the leading mines of California, Nevada, Arizona and Utah, from the San Francisco *Weekly Stock Report* of April 26th:

Alexander (Nye County, Nevada)	$18,500
Black Bear Quartz	11,000
California	1,800,600
Chollar-Potosi	11,900
Comanche	14,900
Consolidated Virginia	1,582,800
Christy (Utah)	46,400
Day	24,400
Eagle	7,900
Empire (Nevada County)	14,700
Eureka Consolidated	403,500
Grand Prize	57,000
Hussey (February, $4,000)	20,900
Idaho (February, $44,988)	44,800
Justice	72,400
K. K. Consolidated	40,000
Leeds	17,600
Manhattan	129,500
McKrackin Consolidated	48,900
Northern Belle	34,200
Ophir (sales of ore)	8,000
Ontario	174,000
Raymond & Ely	7,500
Rye Patch Consolidated	15,700
Silver King	55,900
Standard	73,500
Star (Cherry Creek)	41,500
Young America	2,000
Tip-Top (Arizona—first month)	47,300
Tybo Consolidated	99,100
Total	$4,928,400

Mr. Graham, of the Weighing Department, in the Assay Office, at New York, recently received three monstrous silver bricks from New Mexico. The largest weighed 293 pounds, and is valued at $4833. Altogether the weight is 11,000 ounces. It is surmised that the bricks are made so large to prevent people carrying them off. The Assay Office also received on Saturday five tons of ore from Nevada, worth about $200,000. In addition there were $200,000 in silver dollars from the Mint at Philadelphia, following a shipment of $125,000 of the same kind received two weeks ago, making the second lot under the operation of the Silver bill.

The Philadelphia Mint Coinage for April.—The following is the statement of the coinage executed at the United States Mint in Philadelphia, for the month of April:

Denomination.	No. of pieces.	Value.
Bland dollars	2,010,000	$2,010,000
Five cents	200	10
Three cents	200	6
Cents	200	2
Total, base	600	18
Total for month	2,010,600	2,010,018

New York Assay Office Business for April.—The New York Assay Office during April received $618,000 gold deposits and $1,360,000 silver deposits, a total of $1,978,000; stamped $185,239 gold bars and $394,318 silver bars, and transmitted $545,083, gold, to the Philadelphia Mint for coinage.

United States Mint Coinages for April.—The total coinage of the United States Mints during April was $6,143,920. The gold coinage was $184,784. Of standard silver dollars 2,470,000 were turned out.

The Bureau of Engraving and Printing has prepared the silver coin certificates of the denominations of $10 and $20. The certificates for larger amounts will be ready about the middle of this month.

San Francisco Specie and Bullion Shipments.—SAN FRANCISCO, May 2.—The following is the treasure list of the steamship City of Tokio, which sailed from this port today: Silver bars, for Shanghai, $215,287: for Hong Kong, $2,400; Mexican dollars, for Hong Kong, 126,973; trade dollars, 25,579; gold coin, $1350.

Gold Shipment to Europe—One hundred thousand dollars in gold coin were shipped to Europe on the Scythia Thursday. As at the present rate of exchange shipments of gold must be made at a loss, the exportation is supposed to be the work of speculators with a view to a rise in the price of gold.

The Subsidiary Silver Coins.—A bill was introduced into the House of Representatives on the 1st inst., to relieve the public from redundant subsidiary silver coin, by providing for its redemption in greenbacks or silver dollars by the sub-treasuries when presented in sums of $100 or multiples thereof. The mints some time ago ceased coining subsidiary silver. The amount of these coins now in circulation is estimated at $43,000,000.

Copper.—It is said that there have been sales of between 7,000,000 and 8,000,000 lbs. of copper to manufacturers at 16½c. for delivery up to the end of August, and that the mining companies have given a guarantee that they will not sell for less than 17c. during that time. At the close, however, copper was obtainable at 16½@16¾c. With this large amount of the actual requirements of the next four months contracted for, we cannot but look for a very dull trade, and it is questionable if there is not enough copper in the hands of dealers and to come from "outside" sources to supply the remaining wants at less than the rate at which the companies are said to have agreed to hold their copper. London quotes best selected at £70 and Chili bars at £62 10s.

Tin.—There is no business of importance reported in this article. We quote Straits at 14¼c. and L. & F. 14⅝c. Straits in London is £62 10s.; at Singapore, $18.30.

Tin Plates.—The business in these is exceedingly quiet, and, although prices are nominally unchanged, yet they are weaker. We quote in gold, per box, as follows: Charcoal tins, $5.75@$5.87½, and ternes, $5.50@$5.37½; coke tins, $5@$4.87½ and ternes, $5.

Messrs. Robert Crooks & Co., of Liverpool, under date of April 8, say of tin and terne plates: "Market is about as dull as ever, and at the quarterly meeting there was little animation, the principal items of interest being a makers' meeting to reduce the make, and a rumored sale of coke tins, at 14s. 7½d. in quantity. This latter has had a depressing effect on this class of plates, but there are plenty of makers who are quite firm at 15s. 6d. to 16s., but general price is 15s. to 15s. 3d. Buyers of special brands have to pay full prices, and this is specially so in charcoals, as makers of best grades are producing small quantities, and only working to orders. Ternes are quoted at 14s. 3d. for cokes, and 16s. 9d. to 17s. for charcoal."

Lead.—Without important business we quote the market at 3⅝c. The San Francisco *Commercial Herald* of April 25th says: "The Colima, *via* Panama, carried *en route* to New York 661,687 lbs. base bullion, and the Belgic for Hong Kong carried 830,070 lbs. pig lead and to Japan 40,000 lbs."

The Salt Lake *Tribune* says:

"The Germania company have commenced refining their base bullion, and have already made one or two small shipments of lead to China, having a contract to fill for a house in that country. Extensive refining works conducted in connection with Utah smelters, and an active lead market in China, would be likely to bring the Union Pacific people to a due sense of their own interests by forcing them to pay some little regard to the protests of our mining men against the company's cut-throat discriminating policy toward Utah. Wherever capitalists set up the refining works which our mining interests demand, white lead works will soon spring into existence, together with other kinds of lead works.

"It is reported that a contract has been made with parties in Japan for 1000 tons. England has heretofore had a monopoly of this trade."

Spelter and Zinc.—Spelter is very quiet and quoted at 5@5¼c. per lb. Sheet zinc without important business, is quoted at 6@6½c.

Antimony is more abundant and is quiet. We quote Cookson's at 12¾c., and Hallett's 12¼@12¾c.

Quicksilver.—The San Francisco *Commercial Herald* of April 25th, 1878, says: "The market is dull at 42c. for export lots. The Belgic, for Hong Kong, carried 1675 flasks, and for Yokohama, 145 flasks. The Free Trade, for Mexico, 100 flasks.

Salt Lake Ore and Metal Market.

SALT LAKE CITY, Utah, May 3, 1878.

Argentiferous Lead (Base Bullion). $35 per ton for lead; $1.18 per ounce for silver; $20 per ounce for gold. The quotations for silver are based upon the silver in the lead of 80 to 120 ounces per ton of 2,000 lb.

The *Inter-Ocean* correspondent, under date of the 26th ult., says:

"There have been sales of bullion at $30 for lead and $1.15 per ounce for silver. These prices are ruinous and can not be maintained.

"Patrick & Davis have commenced another suit against the Flagstaff mine. When this property becomes entirely exempt from the law we can look for better times.

"The snow in the cañons is very soft, and transportation very seriously interrupted.

"I was shown a bottle of very fine lubricating oil, said to have been discovered flowing from the ground in the southern part of the Territory.

"There is some little excitement about the Salmon River mineral discoveries, and several parties are fitting out and going there. Some who have returned from there do not report favorably. Still they go when once they get excited. The shipments last week were as follows: 9 cars bullion to Omaha; 21 cars bullion to Pittsburg; 11 cars lead ore to Omaha; 1 car copper ore to Phœnixville, Pa.; total, 42 cars; weight of bullion, 638,978 lbs.; lead ore, 230,000 lbs.; copper ore, 21,007 lbs.; total, 889,985 lbs."

The San Francisco *Commercial Herald* of the 25th ult., has the following: "The Colima, via Panama, carried en route to New York, 661,687 lbs. base bullion, 47,554 lbs. silver ore, 430,000 lbs, pig lead. The Belgic, for Hong Kong, carried 830,070 lbs. pig lead, and to Japan, 40,000 lbs.

FINANCIAL.

New York Stocks.

NEW YORK, Friday Evening, May 3, 1878.

There has been a larger business this week than during the previous one, and although some advance was made in prices during the week, yet it was nearly all lost at the close. The slight advance in the price of coal at Wednesday's auction sale as compared with the previous one, was so transparently the work of manipulation that it lost all effect. The dealings in Delaware & Hudson aggregate 5727 shares at 54¼@51⅝, and of Delaware, Lackawanna & Western, 110,510 shares, at 50⅞@53⅜.

The Central New Jersey reorganization goes on rapidly. Up to last night the assets were $14,676,000 consolidated and convertible bonds out of $20,000,000; $13,343,000 stock out of $20,000,000; $4,202,000 Lehigh bonds out of $5,000,000, and $2,010,000 American Dock out of $3,000,000.

The Utica, Ithaca & Elmira Railroad was sold on the 30th ultimo, at the Exchange Salesroom, in this city, under foreclosure proceedings, to King & Co., for $50,000. The company was formed by the consolidation, on October 25th, 1871, of the Ithaca & Cortland and the Utica Horseheads & Elmira Railroad companies. The road was opened from Cortland to Ithaca in 1872, and to Elmira December 14th, 1875. The line is 72 miles long, and was started for the purpose of opening up the Blossom bituminous coal regions. By this sale the floating debt of $250,000 is wiped out. It is understood that the English owners will carry out a reconstruction scheme, by which new bonds will be issued, and that George J. Rice will be President.

Boston & Carbondale R. R.—The Scranton *Republican* says of this enterprise:

"The Boston & Carbondale Railroad is now a fixed fact. By the first or middle of July it is expected that freight cars will run over the route. The Erie will lay a third rail, and the piece of road to be built is already graded. This enterprise will enable the Del. and Hudson C. Company (which has agreed to run three hundred cars per day over the road) to sell coal in Boston fifty cents per ton cheaper than any other company. The Boston people are delighted with the project, and so are people all along the route. People can leave Scranton in the morning, by this new route, and arrive in Boston at 5 P. M."

The Indiana Block Coal & Railway Company, Joseph Collett, President, has filed articles of association with the State Secretary. The line is designed to run from Knightsville, Clay County, Ind., to a point eighteen miles distant, on the Terre Haute & Chicago route.

Lehigh & Wilkes-Barre Coal Co.—The receiver of this company, under date of the 30th ult., announces that the coupons due on the 1st inst. on the Sterling bonds of this company will be paid upon presentation at the office of Messrs. I. Thompson T. Bonar & Co., London, or at the Receiver's office in this city.

Western Vermont Marble Co.—The annual meeting of this company will be held May 9th.

The Lake Superior Ship Canal, Railway & Iron Co. will hold its annual meeting May 14th.

Coupons and Interest on the bonds of the following companies will fall due during the present month.

Albany & Susquehanna R. R. Co.—Sinking fund and equipment bonds; coupons paid by Delaware & Hudson Canal Co.

Central R. R. of New Jersey.—Conv. bonds; coupons will not be paid.

Delaware & Hudson Canal Co.—Reg. Int., loan of 1877; coupons.

Denver & Boulder Valley R. R. Co.—Coupons.

Denver & Rio Grande R. R. Co.—Coupons.

Joliet Iron & Steel Co.—Coupons due.

Milwaukee Iron Co.—Coupons due.

Morris & Essex R. R. Co.—First mortgage coupons paid by Del., Lack. & Western R. R. Co.

Oswego & Syracuse R. R. Co.—First mortgage bonds of 1875; interest paid by Del., Lack. & Western R. R. Co.

Richmond Iron Mining Co.—Coupons due.

St. Louis & Iron Mountain R. R. Co.—Coupons due.

Union Iron Co.—Coupons.

Wilmington Coal Mining & Manufacturing Co.—Coupons due.

Philadelphia Stocks.

PHILADELPHIA, Friday Evening, May 3, 1878.

The business in the coal shares in this market has been a quiet one, and prices have been weak, the closing quotations in each instance being lower than a week ago. Lehigh Coal & Nav. Co. steadily declined from $17⅝ to $16⅝, with sales of but 581 shares. Lehigh Valley records 873 shares at $38⅝@$37¼. Pennsylvania R. R. reached $29 on Monday, and steadily declined to $28⅝ to-day, with sales for the week of 14,870 shares. The sales of Philadelphia & Reading amount to 5,549 shares at 13⅛@13⅝.

The purchasers of the Danville, Hazleton & Wilkes-Barre Railroad met at Bloomsbury, Pa., on the 1st inst., and reorganized a new company, adopting the name of the Sunbury, Hazleton & Wilkes-Barre Railway Company. Isaac Eyre was elected President.

AUCTION SALES.—*Pennsylvania R. R. Co.*—2003 shares at 28⅞@¾.

Lehigh Valley R.R. Co.—$1000 1st mortgage 6 per cent bonds, due 1898, at 110 per cent, and $1000 consolidated mortgage loan 6 per cent at 96 per cent.

Columbia Coal & Iron Co.—2000 shares at ⅛ cent per share.

Somerset Coal & Iron Co.—1000 shares at ¼ cent per share.

Pennsylvania Gas Coal Co.—116 shares at $35½ per share.

American Dredging Co.—10 shares, par $100, at $10.

Susquehanna Canal Co.—A general meeting of the stockholders of this company will be held May 14th.

Elmira & Williamsport R. R. Co.—The annual meeting of this company will take place May 6th.

Coupons and Interest on the bonds of the following companies will fall due during the present month:

Camden & Amboy R. R. Co.—Coupons paid by Pennsylvania R. R. Co.

Chester Valley R. R. Co.—Coupons.

Cumberland & Pennsylvania R. R. Co.—Second mortgage; coupons.

Delaware & Raritan Canal Co.—Coupons paid by Pennsylvania R. R. Co.

Ironton R. R. Co.—First mortgage; coupons.

James River & Kanawha Canal Co.—Coupons.

Karthaus Coal & Lumber Co.—Coupons.

Lehigh Coal & Navigation Co.—Six per cent loan due 1897; reg. interest.

North Pennsylvania R.R. Co.—2d mortgage 7 per cent.; coupons.

Pennsylvania R. R. Co.—United Co.'s Loan, 1889; coupons.

Scioto & Hocking Valley R. R. Co.—Coupons.

Schuylkill Navigation Co.—Boat and Car Loans and Improvement Bonds; coupons.

Shickshinney Coal & Iron Co.—Coupons due.

Union Canal Co.—1st moatgage coupons.

Miscellaneous Stocks and Quotations.

Sales and quotations of the stocks and bonds dealt in here at Philadelphia and Baltimore for the week ending the 3d inst are given in the following tables. The Philadelphia quotations will have a * affixed. The Baltimore quotations are indicated thus †.

STOCKS.	Par Value.	High'st	Lowest	Closing	Sales: Shares.
American Coal Co.	$25	.....	.....	30	.....
St.L.,I.M.& S.R.Co..	100	.....	7⅝	7½	47
Spring Mt. Coal Co.	50	.....	.....	35	.....
*Cambria Iron Co..	50	.....	.....	53	.....
*Penn. Salt M'f'g Co.	50	65	64	.....	.....
*Westm'land C. Co.	50	.....	.....	70	.....
*Buck Mt. Coal Co..	50	.....	.....	33	.....
*Schuyl. Nav. Co..	50	.....	.....	.....	.....
†B.&O.RR.Co.1st pf	.....	.....	.....	96	2
†B.&O.RR.Co.2d pf	100	.....	.....	.....	.....
" " " com	100	.....	.....	81	42
†George's C'k C. Co	100	.....	.....	90½	20
†S. Clara M'g Co...	100	.....	.....	25c.	.....
†Atlantic Coal Co.	10	.....	.....	91c.	.....

BONDS.	Prine'l. When Due.	Int'est. When Due.	Hig'st.	Lowest	Amount.
D., L. & W., 7s, conv	1892	J. & D.	.....	.....	.....
" " " 2d mtge.	1881	M. & S.	103⅝	.....	$4,000
N.J.C.,1stmtge.new	1890	F. & A.	111⅜	111⅛	10,000
" " 1st mtge.,con	1899	Q.	69⅝	69	7,000
" " convt.....	1902	M. & N.	70	67½	37,000
Lehigh & W. B., con	1899	Q.	40	.....	20,000
Am. Dock & Imp. 7s	.....	J. & J.	44	43	7,000
St.L.I.M.& S..1st mt	1892	F. & A.	103¾	.....	1,000
Ches. & O., 1st mtge	1899	M. & N.	.....	.....	.....
D & H C Co.,1stm.rg	1884	J. & J.	99	98½	17,000
" " " " "	1891	J. & J.	100	.....	2,000
" " " " m.loan cp	1894	A. & O.	96½	.....	2,000
" " " " " rg.	1894	A. & O.	.....	.....	.....
" " " " new mge.	.....	.....	.....	.....	.....
*L.V.R., 1stm.6s.cp.	1898	J. & D.	110¼	.....	1,000
" " " rg.	1898	J. & D.	.....	.....	.....
" " " 2d m. 7s,rg.	1910	M. & S.	114	113¾	4,000
" " " con.m.6s,rg	1823	J. & D.	97	.....	5,000
" " " 6s cp.	1923	J. & D.	.....	.....	.....
*Pa.RR.,1st m.6s,cp	1880	J. & J.	104½	.....	3,000
" " g. m., 6s, cp.	1910	J. & J.	106¾	.....	2,000
" " 6s, rg.	1910	A. & O.	106⅞	.....	2,000
" " con.m.6s,rg.	1905	Q.	.....	.....	.....
" " " 6s, cp.	1905	J. & D.	.....	.....	.....
" " new loan, 5s	.....	.....	111	110⅞	2,200
*P.& R. R., 1st m.6s, R. C. 43-44.....	1880	J. & J.	103	.....	7,500
P. & R. R., 1st m. 6s, R. C. 48-49.....	1880	J. & J	.....	.....	.....
P.& R. R.,2d m.7s cp	1893	A. & O.	110½	.....	1,000
" " " scrip....	1882	J. & J.	54	53¼	4,335
" " " in.m.7s,cp	1896	J. & D.	.....	.....	.....
" " " c.m.7s,cp.	1911	J. & D.	100¼	.....	21,000
" " " " 7s. rg.	1911	J. & D.	100¼	.....	1,000
" " " cvt.7s,R.C & C.& I.Co.,Deb	1893	J. & J.	.....	.....	.....
7s, R. C.....	1892	M. & S.	.....	.....	.....
& R.C.& I. Co., m. 7s, R. C.....	'92-3	various	.....	.....	.....
L. Nav. Co.,6s,rg.m.	1884	J. & Q.	.....	102¼	.....
" " RR., rg. m.	1897	F. & Q.	102	.....	500
" " cvt. co. G. R.	1894	M. & S.	.....	.....	.....
" " " Gold R. C.	1897	J. & D.	86¾	.....	2,500
" " con.m.7s,rg.	1911	J. & D.	.....	.....	.....
*P.& N.Y.C.,7s,R.C.	1896 / 1906	J. & D.	113	.....	2,000
*Pa Canal, 6s, cp..	1910	J. & J.	.....	.....	.....
*Schuyl.Nav.,1st m. 6s. rg.....	1897	M. & Q.	.....	.....	.....
*Sus.Coal, 6s, rg...	1911	J. & J.	.....	.....	.....
†Balt.&O. RR., 6s..	1880	J. & J.	.....	102¼	.....
" " " 6s..	1885	A. & O.	.....	104	.....

Total transactions for the week.....$166,035

† Ex-Coup

Copper Stocks.

Reported by WILSON W. FAY & CO., Brokers in Mining and Miscellaneous Stocks, Room 7, Traveller Building, 31 State street

BOSTON, Wednesday Evening, May 1, 1878.

The market has been unusually quiet and dull, the miserable weather of the week undoubtedly having a depressing effect upon the spirits of the operators as well as on the market, and spoiling the splendid prospect that was in view last week, by running the whole market down on railroad stocks and bonds, and consequently deferring the expected re-action in "coppers."

Calumet & Hecla has declined, and sold at 175, but closes firm at 175@175½.

Copper Falls is quiet, there being no demand of any consequence, and few sellers. It closes 1¼@1½.

Franklin is also quiet at 6@6⅛, and no sales.

Osceola is weak, there being no demand for it, and the stock offered at 10.

Pewabic is firm at 1¼@2, and looks as though it would rise before long.

Quincy has sold at 16, and closes firm at 16 bid, and no stock offered.

Ridge is quiet at 1⅛@1⅜, and no sales.

Duncan advanced to 1⅜ in consequence of good news from the mine, but has since declined to 1¼@1¼, and closes firm. The last reports from the mine were to the effect that the last ore taken out assayed between 70 and 80 ounces to the ton and that everything was looking favorably.

International is firm at .25@.30, and sales at .30.

Gold and Silver Stocks.

NEW YORK, Friday Evening, May 3, 1878.

The business of the week has been but little less than the previous one, the falling off having been mostly in Dahlonega, in which the dealings have been 137,050, selling on last Saturday at 32c. and declining to 14c. to-day, and closing at 15c. The cause of the break is attributed to somebody being overloaded. As there are supposed to be but 50,000 shares out, which, at say 25c., would equal but $12,500, the operators who have been making such a great noise over this stock must have been rather weak financially, for, to carry the whole load could hardly be considered as assuming a burden. Then, again, where is the support at 25c. per share that was promised? American has had sales of but 600 shares at $7½@$8. This company has declared a dividend of 1 per cent. Hukill has declared a dividend of 1 per cent. The reports from this mine are very favorable. To-morrow 90,000 shares of this stock will be sold at auction. We are informed, however, that this sale will amount to but a mere form to establish beyond question a title already acquired. After this, more activity in the stock may be looked for. The sales for the week aggregate 450 shares, at $4.55@$4.35. The sales of Moose amount to 3600 share, at 7½@7⅝. New York and Colorado has been dealt in to the extent of 1000 shares at $2.20@$2.05. Ontario has been quiet, the sales only amounting to 660 shares at 35¼@36. We have received the following official information: "The production of the Ontario Silver Mining Company for 26 days in April was 74 bars of bullion, having an assay value of $145,914.29. The report of receipts and disbursements of the company for the month of March last, shows a balance on hand, April 1, of $286,856.02." Plumas has declared a dividend of 8c., gold, per share. The sales of this stock for the week have been 9,200 shares at $3.85@$4.10@$3.90. American Flag, with sales of 5300 shares, has settled from 13c. to 10@13@11c. The quotations of Bertha & Edith have ranged from 17c. to 13c., the sales amounting to 44,900 shares. Buckeye, with sales of 3200 shares, has advanced from 36 to 38c. The dealings in Cashier aggregate 2200 shares at $1.45@$1.35. The reports from this mine are fairly encouraging. Gold Placer somehow holds its own, recovering from $1.05 on last Saturday to $1.80 on Tuesday, afterward settling to $1.35 and reaching $1.65 to-day. The sales reported are 7400 shares. We even meet those who have confidence in this property, but we have no confidence in the recorded transactions. Kings Mt. has been dealt in to the extent of 1300 shares at $1.55@$1.65. Lacrosse continues to attract a large amount of attention, the sales for the week having amounted to 66,300 shares, at 37@44c., which, at say 40c., would place the property on a basis of value equal to $40,000, while, in reply to inquiry made of a local authority, we are informed that the present property has neither an actual nor prospective value.

The Grand Belcher Silver Mining Co. is an applicant for public notice. Its capital stock is $3,750,000, represented by 375,000 shares of the par value of $10 each, stock full paid and non-assessable. According to the company's prospectus, the property is on the south side of Douglas Mountain, adjoining Georgetown, Col., "and consists of three tunnel sites, seven silver mines of 3000 ft. each, with buildings and equipments; 40 acres of placer ground, mill sites and water way, and a water-power, abundant for all possible needs of the property." It also has a main tunnel, "now in 795 ft., intersecting three lodes, and being rapidly pushed to intersect the remaining four owned by the company." Captain Lampshire, in speaking of lode No. 1, says: "A level is drifted in easterly on this lode 70 ft., exposing ore that yields from 50 to 150 oz. of silver, and 1 to 3 oz. of gold per ton. In this level a winze is sunk 34 ft. on the vein below the level of the tunnel, showing better ore with depth."

From the tunnel west on this lode there is a level run on the vein for 90 feet in continuous ore." On lode No. 2 "a level has been run west 60 feet. On lode No. 3 "but little drifting has been done. * * Lode No. 4 is being mined on the surface from its out-crop, and is yielding mill runs of from 72 to 135 oz. of silver and 1¼ oz. of gold per ton." Although this property, from the report given, should be a good "prospect," yet it is far from being a "mine" to be capitalized at $3,750,000—perhaps if the first two figures were omitted the remaining would more nearly represent its value. Upon the whole the prospectus is a modest one, whether the owners are possessed of the same virtue will be determined by the prices they will ask for their stock.

We have already made mention of the late strike of a rich pocket in the Silver Islet mine. During the week there have been on exhibit at the company's office, at 52 Broadway, a number of very beautiful specimens of native silver, purporting to come from the late discovery. This strike was made March 26 on the third level, which is 165 ft. from the surface, in driving to the south at a distance of 135 ft. from the shaft. Work is progressing slowly, but latest advices from the mine state that about $10,000 had been taken out by simply driving the level. The management thinks it has struck a deposit similar to that which in years back made the mine famous, and from which about $2,500,000 was mined.

In our issue of April 20th, we drew attention to the prospectus of the Rising Sun Silver Mining Company, which is capitalized at $2,000,000, divided into 200,000 shares of the par value of $10 each. The company is offering its stock at $2 per share or on the basis of $400,000 for the whole property. This property, like many others now seeking a market, is not generally known to local authorities. Our correspondent, in writing us under date of April 24th, says: "In my opinion, there is not within a radius of ten miles of Ouray any five lodes which would at the present date warrant an investment of $200,000, and if a good, sound and profitable investment was sought for, based upon the present value of any five lodes, they would be overpaid with $100,000.

The San Francisco *Stock Report*, of April 26th, says:

"A few weeks ago the *Stock Report* advised Eastern people to inform themselves in regard to mining properties before making investments. We called their attention to the fact that properties were being floated in the East of which little or nothing was known here. We repeat this warning. We regret to interfere with the plans of manipulators, but we must do our duty. We desire that the Eastern market for Western mining shares shall be legitimately extended, and to this end we are earnestly laboring. The surest way to destroy the Eastern market for our stocks is to float a few wild-cat stocks in New York."

The same paper says:

When the New York Mining Board was organized, some time ago, it was claimed by its advocates then that the legitimate result would be the bringing to this coast of a very large amount of Eastern capital. Mining men thought that all that was needed in order to interest the moneyed men on the other side of the Rocky Mountains in our mines was opportunity and the establishment of this Board, for the express purpose of dealing in our stocks would give the capitalisis of the East the chance which, we were led to believe, they had long been waiting for. As a matter of fact, nothing of the kind has been the result of the movement. Any day that one may choose to take the trouble of examining the record of sales, he will find that the best known stocks are scarcely quoted, while large transactions in mines of which he is probably blissfully ignorant, greet his eye. This result is a perfectly legitimate one and proceeds from very natural causes. In the first place, mining stocks are comparatively an unknown species of investment to our Eastern friends. The fame of the Great Bonanza spread like wildfire throughout the country, and the story of the fabulous wealth made by the men who owned stock in the mines led many people to believe that all that was necessary to acquire a fortune was to purchase a few shares in some hole in the ground which had for its superintendent a man possessed of a good knowledge of adjectives. This being the state of things, every body who had a cayote hole in a claim flocked to New York upon the establishment of the Board and found there men ready and willing to purchase his mine at almost his own figures. The second thing which has militated against any investment in our securities is the fact that the great speculators, such men as Gould for example, have been ruled out because the banks would not take mining shares as security for loans. Every one knows that it is absolutely necessary for men who are dealing in stocks, to have in their possession those that have an ascertained money value, and unless they can get them they can not afford to deal. It often happens that large stock operators can only carry their load by hypothecating their shares and this hypothecation has many a time and oft saved the operators from bankruptcy. When, then, the Mining Board was organized in New York the men there should have established a bank at the same time in order to make their venture a success. It is really owing to this, as far as California and Nevada mines are concerned, that the thing has practically been a failure. It is just in this that the projected branch of the Nevada bank will do so much good for all of the people upon this coast. Enabling the big operators in New York to borrow money upon certain stocks, will not only bring them into the market, but will also act as a check upon all of the wildcats which are at present so extensively dealt in. In fact the bank will become the financial thermometer of the street, and will have the power to place the Eastern capital in any channel which it may choose to. Although this is, of course, a great power, still it is one which may safely be entrusted to Messrs. Flood & O'Brien with the certainty that they will use it for the best interests of the Pacific Coast.

COAL TRANSPORTATION AND GENERAL MINING STOCKS.

COAL STOCKS.

NAME AND LOCATION OF COMPANY.		Feet on Vein.	Capital Stock.	SHARES. No.	SHARES. Par Val.	ASSESSMENTS. Total levi'd to date.	ASSESSMENTS. Date and amount per share of last. Mo.	Yr.	Amt.	DIVIDENDS. Total paid to date.	Last Dividend. Mo.	Yr.	Amt.	Rate per Ann.	HIGHEST AND LOWEST PRICES PER SHARE IN CURRENCY AT WHICH SALES WERE MADE. N. B.—Quotations of D., L. & W. R. R., and Pa. Coal Co. are per $100—two shares. April 27. H.	April 27. L.	April 29. H.	April 29. L.	April 30. H.	April 30. L.	May 1. H.	May 1. L.	May 2. H.	May 2. L.	May 3. H.	May 3. L.	SALES.
			$			$				$				Per c'nt													
Consol. Coal	Md.		10,250,000	102,500	$100	*					Jan.	1877	2½														
Del. & H. Canal	Pa.		20,000,000	200,000	100					38,821,104	Aug.	1876	4	9	52⅛	51¼	53⅜	52¼	53¼	52⅝	53¼	51⅝	53⅛	53¼	53⅛	52¾	5,727
Del., Lac. & W. R. R.	Pa.		26,200,000	524,000	250						July	1876	2½	5	52½	50⅝	53¼	52	53⅜	51⅞	53	51½	53¼	52⅝	53¼	52¾	110,510
Lehigh C. & Nav.	Pa.		10,448,550	208,971	50						Nov.	1876	1¼	5½	....	....	17⅝	17¼	17¼	17¼	17⅛	17⅛	17	17	16⅞	16⅝	581
Lehigh Valley R. R.	Pa.		27,042,900	540,858	50										38⅛	38⅛	....	....	38⅜	38½	38⅛	38⅜	38¼	38	37⅝	37½	873
Maryland Coal	Md.		4,400,000	44,000	100						Jan.	1876	1¼	1¼													
N. J. Central R. R.	Pa.		20,600,000	206,000	100						Apr.	1876	2½	2½	16	15⅝	16⅜	16	....	....	....	....	17	16⅜	17½	17	1,973
Pennsylvania Coal	Pa.		5,000,000	100,000	50						Feb.	1878	3														
Pennsylvania R. R.	Pa.		68,870,200	1,377,404	50						May.	1877	1¼	8	28¾	28¾	29	28¾	28¼	28¼	28¼	28¼	28¼	28¾	28½	28¾	14,870
Phil. & Read. R. R.	Pa.		34,278,175	685,563	50					43,012,497	Jan.	1876	2½†	10	13¾	13⅛	13¼	13¾	13¾	13¾	13⅜	13⅛	13⅜	13⅛	13⅜	13⅜	5,549

GENERAL MINING STOCKS.

Dividend Paying Mines.

American	Col.		1,000,000	100,000	10	*				50,000	May.	1878	$0 10	12	7	6	....	....	....	....	....	....	7⅛	6	....	....	60
Belcher, g. s.	Nev.	1,040	10,400,000	104,000	100	1,280,400	Mar.	1878	1 00	15,397,200	Apr.	1876	1 00	12	....	....	....	....	....	....	....	....	....	....	....	....	....
Bobtail, g.	Col.	2,500	1,136,630	227,326	5	*	....	....	....	56,831	Nov.	1877	25	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Bobtail Tunnel, g.	Col.		100,000	20,000	5	52,000	July	1873	0 30	40,000	Dec.	1877	50	20	....	....	....	....	....	....	....	....	....	....	....	....	....
California, g. s.	Nev.	600	54,000,000	540,000	100	....	....	....	....	24,840,000	Mar.	1878	2 00	24	....	....	....	....	....	....	26	....	....	....	....	....	100
Calumet & Hecla, c.	Mch		2,000,000	80,000	25	1,000,000	....	....	....	12,650,000	Feb.	1878	5 00	20	....	....	....	....	....	....	....	....	....	....	....	....	....
Central, c.	Mch		500,000	20,000	25	100,000	June	1862	0 85	1,260,000	Feb.	1878	5 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Chollar Potosi, g. s.	Nev.	1,400	2,800,000	28,000	100	1,578,000	Jan.	1878	3 00	3,040,000	Feb.	1872	1 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Copper Falls, c.	Mch		1,000,000	20,000	50	535,000	May.	1876	....	100,000	Nov.	1871	1 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Cons. Virginia, g. s.	Nev.	710	54,000,000	540,000	100	474,600	June	1873	3 00	38,880,000	Mar.	1878	2 00	24	15	....	....	....	14½	....	....	15⅝	15¼	....	....	15¼	60
Confidence, g. s.	Nev.	130	2,496,000	24,960	100	243,840	Mar.	1873	1 00	78,000	May.	1865	8½	8½	....	....	....	....	....	....	....	....	....	....	....	....	....
Cons. Her. & Roe	Col.	16,500	1,000,000	100,000	10	*	....	....	....	120,000	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Crown Point, g. s.	Nev.	600	10,000,000	100,000	100	1,673,370	Jan.	1878	1 00	11,588,000	Jan.	1875	2 00	24	....	....	....	....	....	....	....	....	....	....	....	....	....
Eureka Cons., g. s. L.	Nev.	....	5,000,000	50,000	100	100,000	May	1876	1 00	1,600,000	Feb.	1873	3 00	24	....	....	....	....	....	....	....	....	....	....	....	....	....
Eureka G. Mg., g.	Cal.	1,680	2,000,000	20,000	100	....	....	....	....	2,134,000	Aug.	1877	2 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Franklin, c.	Mch		500,000	20,000	25	360,000	June	1876	5 00	585,000	Nov.	1871	1 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Gould & Curry, g. s.	Nev.	612	10,800,000	108,000	100	2,558,000	Dec.	1877	1 00	3,826,800	Oct.	1870	10 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Grand Prize	Nev.	....	....	....	....	....	....	....	....	1,200,000	Feb.	1878	1 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Hale & Norcross, g. s.	Nev.	400	11,200,000	112,000	100	2,746,000	Dec.	1877	1 00	1,598,000	Apr.	1871	5 00	12	....	....	....	....	....	....	....	....	....	....	....	....	....
Hukill, g. s.	Col.	3,288	1,000,000	100,000	10	*	....	....	....	150,000	May.	1878	0 10	12	....	....	4.45	4.35	4.35	4.40	....	....	4.35	....	....	....	450
Kentuck, g. s.	Nev.	95	3,000,000	30,000	100	270,000	Dec.	1874	1 00	1,252,000	Mar.	1870	5 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Leopard, L. g. s.	Nev.	1,500	5,000,000	50,000	100	125,000	Feb.	1878	50	162,500	Dec.	1876	0 50	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Merrimac, s.	Mas.	1,500	500,000	100,000	5	*	....	....	....	120,000	Mar.	1878	0 10	12	....	....	....	....	....	....	....	....	....	....	....	....	....
Minnesota, C.	Mch.	....	1,000,000	20,000	50	436,000	June	1869	1 00	1,820,000	Mar.	1876	0 50	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Moose	Col.	39,000	2,000,000	200,000	10	....	....	....	....	200,000	Mar.	1878	0 25	10	....	....	....	....	....	....	....	....	....	....	....	....	....
National, c.	Mch.	....	500,000	20,000	25	195,000	Oct.	1875	1 00	360,000	Oct.	1873	1 00	....	....	....	7¼	....	....	....	7⅛	....	7⅛	7¼	7⅛	....	3,600
N. Y. & Colorado, g.	Col.	....	1,000,000	50,000	20	*	....	....	....	20,000	Mar.	1877	0 20	....	2.15	2.10	2.20	2.15	....	....	....	....	2.10	2.05	2.10	....	1,000
Northern Belle, s.	Nev.	1,600	5,000,000	50,000	100	....	....	....	....	1,425,000	Feb.	1878	1 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Ontario.	Uth.	3,000	10,000,000	100,000	100	....	....	....	....	1,200,000	Apr.	1878	1 00	6	35¾	35¼	....	....	35¾	35	....	....	36	35¾	....	....	660
Ophir, g. s.	Nev.	675	10,080,000	100,800	100	3,035,200	Jan.	1878	1 00	1,394,400	Mar.	1864	4 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Pewabic, c.	Mch.	....	500,000	20,000	25	185,000	June	1868	1 00	460,000	July	1873	1 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Phœnix, c.	Mch.	....	1,000,000	20,000	50	817,500	Sept.	1870	3 00	20,000	Jan.	1876	1 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Plumas	Cal.	....	1,000,000	100,000	10	....	....	....	....	26,000	May	1878	10	....	4.05	3.95	4.05	3.85	4.10	3.85	4.00	3.90	4.10	3.90	4.00	3.90	9,200
Polar Star, g. s.	Col.	1,300	500,000	50,000	10	*	....	....	....	5,000	Jan.	1878	0 10	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Quincy, c.	Mch.	....	200,000	20,000	10	....	....	....	....	2,130,000	Feb.	1877	4 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Raymond & Ely, g. s.	Nev.	5,000	3,000,000	30,000	100	540,000	Dec.	1876	1 00	3,075,000	Sept.	1873	3 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Ridge, c.	Mch.	....	500,000	25,000	25	200,000	....	....	....	90,000	Feb.	1875	1 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Rye Patch	Nev.	3,000	....	....	....	97,500	Nov.	1876	0 50	150,000	Dec.	1877	0 25	....	....	....	....	....	....	....	....	....	....	....	....	....	....
St. Joseph, L.	Mo.	2,000 acs.	1,000,000	100,000	10	....	....	....	....	250,000	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Savage, g. s.	Nev.	800	11,200,000	112,000	100	3,650,500	Jan.	1878	1 00	4,460,000	June	1869	3 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Seaton, g. s.	Col.	1,700	500,000	50,000	10	*	....	....	....	10,000	May	1877	0 10	12	....	....	....	....	....	....	....	....	....	....	....	....	....
Sierra Nevada, g. s.	Nev.	3,650	10,000,000	100,000	100	1,050,000	Jan.	1878	0 50	102,000	Jan.	1871	1 00	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Silver King	....	....	....	....	....	....	....	....	....	200,000	Feb.	1878	0 50	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Standard	Cal.	....	....	....	....	....	....	....	....	300,000	Feb.	1878	1 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Yellow Jacket, g. s.	Nev.	1,200	12,000,000	120,000	100	3,438,000	Mar.	1878	2 00	2,184,000	Aug.	1871	2 50	....	....	....	....	....	....	....	....	....	....	....	....	....	....

Non-Dividend Mines.

Allouez, c.	Mch.	....	1,000,000	20,000	50	940,000	May	1876	5 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Alpha, g. s.	Nev.	300	3,000,000	3,000	100	213,000	Mar.	1878	1 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Am. Flag, g.	Col.	5,300	600,000	60,000	10	*	....	....	....	....	....	....	....	....	13c	12c	12c	....	12c	....	11c	10c	13c	12c	12c	11c	5,300
Bertha & Edith. g.	Vir.	645 acs.	3,500,000	350,000	10	*	....	....	....	....	....	....	....	....	13c	....	17c	13c	16c	15c	16c	15c	15c	14c	16c	13c	44,900
Best & Belcher, g. s.	Nev.	545	10,080,000	100,800	100	337,792	Aug.	1877	1 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Buckeye	Col.	....	5,000,000	500,000	10	*	....	....	....	....	....	....	....	....	36c	....	....	....	36c	....	37c	....	38c	....	....	....	3,200
Bullion, g. s.	Nev.	943⅝	10,000,000	100,000	100	2,802,000	Jan.	1878	1 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Caledonia, g. s.	Nev.	2,188	10,000,000	100,000	100	1,485,000	Feb.	1878	0 50	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Cashier	Col.	....	500,000	250,000	2	*	....	....	....	....	....	....	....	....	1.40	....	1.45	1.40	....	....	1.40	....	1.40	1.35	1.35	....	2,200
Cleveland, g.	Col.	3,715	250,000	25,000	10	*	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Cons. Imperial, g. s.	Nev.	468	50,000,000	500,000	100	575,000	Oct.	1877	0 20	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Con. N. Slope & E. C.T.	Col.	15,000	500,000	10,000	50	*	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Dahlonega	Ga.	....	250,000	250,000	1	*	....	....	....	....	....	....	....	....	32c	30c	31c	30c	30c	29c	30c	29c	25c	22c	23c	14c	137,050
Dana, c.	Mch.	....	500,000	20,000	25	68,000	Jan.	1863	0 50	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Dawson, s.	Ont.	....	1,200,000	60,000	20	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Duncan, s.	Ont.	....	1,200,000	60,000	20	75,000	July	1876	41⅔	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Exchequer, g. s.	Nev.	400	10,000,000	100,000	100	380,000	Jan.	1878	1 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Gold Placer, g.	Col.	....	5,000,000	200,000	25	....	....	....	....	....	....	....	....	....	1.15	1.05	1.30	1.15	1.80	1.40	1.50	1.35	1.55	1.35	1.65	1.55	7,400
Granville, g.	N. C.	9,000	1,000,000	100,000	10	*	....	....	0 50	....	....	....	....	....	30c	....	....	....	....	....	....	....	....	....	....	....	....
Humboldt, c.	Mch.	....	500,000	20,000	25	100,000	Sept	1876	0 15	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
International, s.	Ont.	....	1,200,000	60,000	20	*	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Julia, g. s.	Nev.	3,000	11,000,000	110,000	100	525,000	Jan.	1878	0 75	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Justice, g. s.	Nev.	2,100	10,500,000	105,000	100	2,237,500	Jan.	1878	2 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
King's Mountain, g.	N. C.	....	1,200,000	120,000	10	*	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Lacrosse	Col.	3,900	1,000,000	100,000	10	*	....	....	....	....	....	....	....	....	40c	37c	41c	39c	1.80	1.55	1.55	40c	1.65	40c	43c	38c	1,300
Luzerne	Col.	4,200	5,000,000	500,000	10	*	....	....	....	....	....	....	....	....	....	....	....	....	44c	40c	45c	40c	44c	40c	43c	38c	66,900
Madison, c.	Mch.	....	500,000	20,000	25	123,000	Sept	1876	0 10	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Mariposa preferred	Cal.	44,387	5,000,000	50,000	100	1,425,000	June	1877	1 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
" common	Cal.	acres.	10,000,000	100,000	100	1,425,000	June	1877	1 00	....	....	....	....	....	....	....	....	....	....	....	16¾	16⅛	....	....	....	....	200
Memphis	Col.	6,000	300,000	60,000	5	*	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Mesnard, c.	Mch.	....	500,000	20,000	25	160,000	Apr.	1876	0 50	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Mexican, g. s.	Nev.	600	10,080,000	100,800	100	181,440	Aug.	1877	0 30	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Overman, g. s.	Mch.	....	1,000,000	40,000	25	3,053,880	Feb.	1878	3 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Osceola, c.	Nev.	1,200	3,840,000	38,400	100	2,567,880	Nov.	1877	3 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Petherick, c.	Mch.	....	500,000	20,000	25	165,533	Mar.	1876	0 50	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Pleasant View, g.	Col.	1,200	200,000	20,000	10	*	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Quicksilver preferred.	Cal.	8,500	4,291,300	....	....	*	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
" common.	Cal.	acres.	5,708,700	100,000	100	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Rockland, c.	Mch.	....	500,000	20,000	25	495,000	Jan.	1874	1 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Seg. Belcher, g. s.	Nev.	160	640,000	6,400	100	244,800	Apr.	1876	5 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Silver City, g. s.	Nev.	3,900	6,310,000	63,100	100	15,775	Nov.	1875	0 25	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Silver Hill, g. s.	Nev.	5,400	5,400,000	54,000	100	192,600	Dec.	1877	1 00	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Star, c.	Mch.	....	500,000	20,000	25	265,000	Mar.	1876	0 50	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Superior, c.	Mch.	....	500,000	20,000	25	340,000	Mar.	1874	0 25	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Union Cons. g. s.	Nev.	850	10,000,000	100,000	100	285,000	Oct.	1877	0 25	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....

g. Gold. s. Silver. L. Lead. c. Copper. * Non-Assessable.

Total Assessment levied to date..... 50,921,210 | Total Sales of Coal Stocks for the week..... 140,083 shares
Total Mining Dividends to date..... 220,377,833 | Total Sales of Mining Shares for the week..... 285,520 "

† A dividend of 5⅓ per cent. was declared on the preferred stock of this Co. in July.

SAN FRANCISCO MINING STOCK QUOTATIONS.

Daily Range of Prices for the Week.

NAME OF COMPANY	CLOSING QUOTATIONS. Apr. 26.	Apr. 27.	Apr. 29.	Apr. 30.	May 1.	May 2.	Opening. May 3.
Alpha	8	8¼	7¾	7	7⅛	7⅜	8
Belcher	3⅜	3½	3¼	3	3	3	.....
Best & Bel.	14⅞	14⅞	13⅛	13	13⅛	12⅞	13
Bullion	3¾	3⅜	3¾	3	4	3½	.....
Caledonia	2	2⅛	1⅞	1¼	1⅝	1⅝	.....
California	26	26¼	26	25½	25½	25¼	25½
Chollar-Pot	24	24½	25	25	.....	27	27
Con. Imp	.....	.....	.....	.....	.....	.....	.....
Con. Va	14⅞	14⅝	13⅞	14⅛	14½	14⅛	14½
Confidence	.....	.....	4	3½	3½	3¾	.....
Crown P'int	3⅞	4	3¾	3⅛	3½	3⅜	3½
Eureka Con	51½	52	53¾	53	53	53½	54
Exchequer	2¾	2½	2¼	1⅞	2⅛	2½	.....
Gould &Cur	6¾	6⅞	6¼	6¼	6½	5⅞	.....
Grand Prize	3¾	3⅝	3⅝	3¼	3½	3⅝	.....
Hale & Nor.	7⅞	8⅛	7⅜	7	7⅝	7	7½
Julia	2⅞	2⅝	2¼	2⅜	4⅛	3⅞	.....
Justice	4⅜	4⅞	6	5½	5½	5½	5½
Kentuck	3	.....	2⅜	.....	.....	2⅜	.....
Mexican	9	9¼	8¾	8⅛	8	8⅝	8⅛
North. Belle	6	.....	5⅜	5¼	5¾	5⅝	.....
Ophir	28	29¼	28⅛	28	30	28¾	31½
Overman	10	9⅞	9¼	8⅛	9⅛	8¾	9
Ray. & Ely	3	.....	3¼	3½	3¼	3	3
Silver Hill	.....	11-16	.....	⅝	.....	.....	.....
Savage	11¼	11¼	10¾	10⅛	10⅝	9⅛	9⅛
Seg.Belcher	.....	.....	29	.....	29	.....	.....
Sierra Nev.	.....	4⅛	3⅞	3¼	3¾	3¾	3½
Union Con.	.....	.....	3⅞	3½	3¾	3¾	3½
Yel. Jacket	6¼	6¼	5½	5¼	5¾	5⅝	5½

The announcement, by J. C. Flood, of the Bonanza firm, of the necessity for reducing the next dividend on Consolidated Virginia to $1 per share, imparts a weak tone to the above list. It is given out with this announcement that this reduction is due to repairing the main shaft which will interfere with ore production, the completion requiring from 60 to 90 days.

Ophir shows an advance, opening to-day at the highest point of the week, viz., $31½ per share, against $28 a week ago.

Chollar-Potosi is another marked exception to the general tendency of the list, opening to-day at $27 per share, against $24 a week ago. The stock of the Eureka Consolidated Mining Co. exhibits a steady advance throughout the operations of the week, the stock opening to-day at $54 per share. The Eureka district is unquestionably destined to be the most important silver-lead region of America. The stock of the companies operating here, whose mines are listed on the San Francisco market, aggregates a very important portion of the transactions, the quotations of which are generally well maintained.

The *Commercial Herald* of the 25th ult. says of the San Francisco market:

"The mining shar markete has been more or less quiet except in the direction of Savage, which changed hands to a large extent, advancing to $14.87½ per share in the regular Board, and several contiguous claims. Though the sales were not as large as during the previous week, a somewhat better feeling prevails, the business having been brought down to a more uniform basis upon which to operate, depriving it to a very great degree of that extreme speculative elevation which could be so readily inaugurated a few years ago. There is an evident disposition to send things booming, but it can not be done unless very fair and substantial developments of ore will be made in the lower levels of these recently advancing stocks, and of which heavy sales have been made. The eagerness to realize on small profits does not allow of so rapid an advance as would otherwise be the case, particularly upon prospective good showings. Heretofore the mere intimation of a strike would send up prices all round. Not so now; times have changed."

Another Bonanza Suit.—"SAN FRANCISCO, April 30th.—Suit has been brought against the Consolidated Virginia and California Mining Companies by Oscar G. Steele to test their title to a portion of their ground known as the William Penn claim. Suit has also been begun by the Murphy Mining Company, which claims an undivided third of the ground and $8,000,000 from the Consolidated Company, and an undivided half of the ground and $1,000,000 from the California Company."

Assessments with dates when delinquent: Hamburg 50c. May 25th; Green, 50c., May 25th; Gould & Curry, $1, May 22d.

Gas Stocks.

NEW YORK, Friday Evening, May 3, 1878.

We slightly lower the quotations of the stock of the Brooklyn Gas Company; otherwise the market is unchanged and remains very quiet. The Williamsburg Gas Company announces a dividend of 2 per cent on its capital stock and a half yearly dividend of 3½ per cent on its scrip certificates. The Nassau and Citizens' Companies of Brooklyn announce half-yearly dividends on their scrip certificates.

Economy in Gas Wanted in Brooklyn.—A consultation has been held between the officers of the Brooklyn gaslight companies and a number of city officials in regard to supplying Brooklyn with gas. It is claimed by the officers of the gas companies that the specifications for contract prepared by the city officials are borrowed from New York and are not applicable to Brooklyn. Their propositions, if carried out, would necessitate an increase of eight per cent. on the price of gas. The officials have decided to report in favor of the old specifications and to compel the gas companies to bid per lamp, instead of per 1000 feet of gas as heretofore. They also decided that the price paid for street lighting must be reduced.

Substituting Gasoline for Gas in Frederick, Md.—The Monumental Gasoline Street Lamp Company of Baltimore has offered to light the streets of Frederick for $22 per lamp per annum. It is claimed that the change will effect a saving of $1,000 a year.

Kerosene vs. Gas in Cincinnati, O.—Indignation at gas bills is taking a practical shape in Cincinnati. Fifteen hundred gas meters were ordered to be taken out of buildings last month. The universal cheapness of kerosene makes that the general substitute.

Lycoming Gas & Water Co., Pa.—120 shares of this stock were sold during the week at public auction in Philadelphia at $4 per share.

People's Gas Light & Coke Co. of Chicago.—The coupons due May 1st are now payable.

Oakland (Cal). Gas Co.—We note a recent sale of 300 shares of the stock of this company at $42 per share.

San Francisco Gas Co.—This stock shows a still further advance, recent sales having been made at $1.03 per share.

The following list of Companies in New York and vicinity is corrected weekly by GEORGE H. PRENTISS, Broker and Dealer in Gas Stocks, No. 30 Broad street, New York:

COMPANIES IN NEW YORK AND VICINITY.	Capital Stock.	Par.	DIVIDENDS. Rate per ann.	Am. of last.	Date of last.	QUOTATIONS Bid.	As'd
	$		P. ct.				
Mutual, N. Y.	5,000,000	$100	10	1½	Apr., '78	75	80
" Bonds	90,000	1,000	7	3½	Feb., '78	.....	102
N. York "	4,000,000	.....	10	4	May, '78	105	112
Metrop. "	2,500,000	100	10	5	Feb., '78	128	132
" Certfs.	1,000,000	.....	7	3½	" '78	100	103
" Bonds	500,000	1,000	7	3½	Dec., '77	102	...
Harlem "	1,850,000	50	8	3	Feb., '78	90	95
Manhat. "	4,000,000	50	....‡	5	May '78	200	202
Brooklyn, Bkln.	2,000,000	52	15	5	Apr., '78	145	155
Nassau "	1,000,000	25	....‡	3	Jan., '78	70	80
" Certfs.	700,000	1,000	7	3½	May, '78	....	101
People's	1,000,000	10	....‡	3½	Jan., '77	25	30
" Certfs.	300,000	1,000	7	3½	Jan., '78	80	85
" Bonds	325,000	.....	7	3	Feb., '78	90	100
Metrop. "	1,000,000	10	5	2½	Nov., '77	68	70
W'msb'g "	1,000,000	50	10	2	Apr., '78	100	105
" Certfs.	1,000,000	.....	7	3½	Jan., '78	100	102
Citizens'	1,200,000	20	....‡	3	Jan., '78	75	80
" Certfs.	320,000	1,000	7	3½	Apr., '78	97	100
J. C., N. J.	750,000	20	10	5	July, '77	160	....
Cen. Wstch. N.Y.	466,000	50	7	4	July, '77	70	...
Subur'n, "	295,000	50	7	3½	Oct., '77	....	95
Municipal, N. Y.	1,500,000	100	.....	.....	.....	94	97

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